Marine Environment Monitoring and Assessment National Database (MERMAN) User Guide

Document History

Revision History

Revision Number	Revision Date	Summary of Changes	Author
1.0	06.06.2006	First draft	Liisa Stuart, IBM Mark Charlesworth, BODC
1.1	07.06.2006	Changes as per discussions	Liisa Stuart, IBM Mark Charlesworth, BODC
2.0	28.06.2006	1.4. Submission dates amended as agreed at AQC and WG meetings 3.2.1 to 3.2.5 A number of clarifications have been made to the description of the input spreadsheets. Most edits are for the Contaminant AQC and PT spreadsheets in particular a number of subnotes. 3.3. Examples given for naming submission files 3.3. Added sentence on what to do if a submission e-mail is not sent from MERMAN to the submitter. 3.3. New details on sending the submission file to MERMAN 3.6. Note that data should not be re-held once the ICES submission has been made as per CSSEG agreements 3.7. Added a new section on tests that Responsible Officers should complete before finally signing off submissions for all AQC and data types for a monitoring year. 4.2.6.2. Amended numbering of subsamples for the biology data so the prefix reflects the sample number. 4.3. Removed section 4.3 which is specific to BODC to separate document 5.0 Removed section 5 that was specific to BODC requirements to separate document 7.0 Removed paragraph on contacting DEFRA IT to separate document that is specific to BODC requirements. Corrected MERMAN e-mail address and references to NMMP throughout document.	Mark Charlesworth, BODC

3.0	03.08.2007	3.2.1. Note 1.2 gives further instruction on the submission of cruise codes for stations that have been visited more than once within one monitoring year. 3.2.1. Note 1.3. gives further instruction on submission of codes for Sample Reason. 3.6. Clarification on Submission held spreadsheet. 3.8. Added in the paper on station sampling strategy and naming convention. Also instructions on adding new stations to the MERMAN station dictionary. 3.2.6 – reference to note 1.2 on cruise codes for submissions of data taken at a station on more than one occasion within a monitoring year. 3.2.6 Updated sample/sub-sample guidelines for biota, sediment and water	Mark Charlesworth, BODC Corallie Hunt, BODC
4.0	01.04.2008	Note 1.3 Updated to highlight further rules regarding the MPROG fields 3.2.3 Further information added to the AQC Spreadsheet table 4.1 Information provided on accessing Business Objects User Manual	Corallie Hunt, BODC
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7.0	18march2011	Changes to how biology subsamples should be numbered if only one mesh size is used Instructions on how to deal with parameters which have AQC data but no PT Updated information on station naming. Needs a thorough check through for updates	Charlesworth, BODC

8.0	17jan2012	on uncertainty and METOA, METCX and METPT and FINFL/REFSK.	Mark Charlesworth, BODC
	05Jun2012	Updated information regarding the Biology_AQC template upgrade including table of fields, green book link, removing-users procedure, general clean-up	Corallie Hunt, BODC
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9.1	05Aug2013	Updated logon screenshots and general clean up.	Corallie Hunt, BODC
9.2	19Aug2013 06May2014	Updated logon screenshots and general clean up.	Arwen Bargery, BODC

Distribution

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1. Introduction

1.1 What is MERMAN Database

The Marine Environment Monitoring and Assessment National Database (MERMAN) is a new database (2005) supporting the Clean and Safe Seas Evidence Group (CSSEG) in monitoring the UK waters. It integrates chemistry, biology and biological effects data from the participating agencies and is used for national and international reporting.

The MERMAN database was built to improve the collation and data management aspects of the previous NMMP and RID programmes. The single database enables data integration and reporting across the different dataset types and geographic areas.

The database is accessible to all via a portal from the Defra intranet. From the portal the users can both access the data submission pages and login to the Business Objects reporting application. Business Objects is a web based reporting package that allows users to run standard reports as well as easily build their own tailored reports which allow them to extract the quality assured data from the database.

One of the key standard reports is the UK's annual data submission of OSPAR data to the ICES database; the system compiles the data according to the ICES reporting requirements (v3.2) and the data can be submitted to ICES without any manual processing.

The data are submitted to the MERMAN database using standardised MS Excel spreadsheets where the users collate their annual submission. They will then use the MERMAN portal to load the data into the database. The data are automatically validated before they are loaded into the database giving users the benefit of knowing that their data fulfils the set criteria. The data submitter receives an email confirmation of the submission status and if there are any errors in the data, these are detailed in an error report.

1.2 Components of the MERMAN Database

The MERMAN database will store the following data elements:

Matrix	Macro benthos	Sediments	Shellfish	Fish Tissues	Fish Liver	Filtered Water	Unfiltered Water	RID
Chemical Contaminants								
Nutrients						1999-current		
Metals		1999-current	1999-current	1999-current	1999-current	1999-current		
PCBs		1999-current	1999-current		1999-current			
Organochlorine pesticides			1999-current					
PAH		1999-current	1999-current					
RID								1994-current

Biological effects								
Benthic macrofauna		1999-current						
Imposex TBT			1999-current					
EROD					1999-current			
Oyster embryo bioassay								
Fish disease			2008-current	2008-current	2008-current			
Metallothien					1999-current			
DNA adducts					1999-current			
Biological Community								
Abundance	1988-current							
Biomass	1988-current							

This table will be updated as more data are added to the system

Figure 1 – MERMAN Components

1.3 Scope of this User Guide

This user guide covers the following aspects of using the MERMAN database:

- Gaining access
- Using the input spreadsheets
- Loading data
- Releasing data
- Running standard reports
- Managing reference data
- How to get help

This user guide does not give detailed instructions in using the Business Objects reporting package as it is assumed that the users will attend a specific training course where they are provided with Business Objects training material.

This document should be used in conjunction with the Green Book, this user guide gives instruction on using the MERMAN system, the Green Book instructs on the sampling policies and procedures.

Please refer to the Green Book:

http://www.cefas.defra.gov.uk/publications-and-data/scientific-series/green-book.aspx

A link can also be found from the BODC website: www.bodc.ac.uk/projects/uk/merman/project_specific

1.4 The UK National Marine Reporting Cycle

The Clean and Safe Seas working group sets the annual deadlines for data submissions to MERMAN

The deadlines for reporting the annual data to ICES are as follows.

- Contaminant and biology data submitted to MERMAN by 1 June.
- Contaminant and biology data submitted to ICES by 1 September.
- RID data submitted to MERMAN by March.
- RID data submitted to OSPAR by 1 October. (outside of MERMAN scope)

1.4.1 Submission Timetable

1.5 Quick Reference Guide for Data Submission Process

Description of Deadline	Responsible Organisation	Deadline Date
Release of new templates for sediment, water and biota	BODC	**1 March**
Deadline for submission of **NEW** Reference Material and New Station Forms to BODC. After this date ICES will not register new codes for reference materials and data against those parameters will not be able to be submitted.	CMAs	**15 April**
Release of new templates for AQC, PT, Biology AQC and BEAQC. Advise on any new requirements for those templates and in particular the approach for BEAQC submissions.	BODC	**1 May**
Final date for delivery of **MYEAR** sample and AQC data to MERMAN. These data should have been screened using the data screening and AQC checking reports in Business Objects and unheld by the Responsible Officer. MYEAR Data delivered to BODC after this date will not be included in the submission to ICES.	CMAs	**1 June**
Submission of QUASIMEME information. Analytical labs are responsible for submitting their own QUASIMEME .asc files directly to ICES via the sharepoint site (or accessions@ices.dk) by this date. A copy (ASCII) should be sent to BODC as well.	CMAs	**1 September**

- Check your data are correct! - Compare against previous years data using the Data Screening Report available to Responsible Officers via Business Objects.
- Check you are using the latest version of the input templates – found on the BODC website:

  http://www.bodc.ac.uk/projects/uk/merman/project_specific/
- Open the relevant template using Excel (at least 2000) and **enable macros**
- Fill in the spreadsheet as per instructions (breakout groups, user guide, example spreadsheets, responsible officers, BODC help facility)
- Check that you do not have transcription errors (be careful when copying cells by dragging them down as this can introduce formatting errors, particularly with numeric cells)
- Save template as a *.csv* using the following naming convention:

  CMA_submissiontype_year_version e.g. CEFAS_biota_2005_a
- Log-on to the DEFRA portal
- After submission send your final .csv file to BODC at merman@bodc.ac.uk
- Once all data (monitoring and AQC) have been submitted they must be released by submitting the 'Unhold' template, this will allow other users outside of your CMA to view the data

2. Access

2.1 Requesting Access to MERMAN

The IBM project team will request access for all of the current NMMP users as a part of the project. When new employees or additional users need access to MERMAN they will need to contact the MERMAN Data Manager (see section 7) who will pass the relevant information to the Defra IT Helpdesk. Users will be requested to provide details as follows:

2.1.1 User Details – Known Facts

User Details	
Name	
Address (incl. County)	Home or work address
Post Code	
Email	
Application Details	
Portal Access Yes/No	This will be 'Yes' for all MERMAN users
Application ID	Marine Environment Monitoring and Assessment National Database (MERMAN)
Role: NMMP Business Object User NMMP Submission User NMMP Multiple Support User	One of the three options to be selected

Figure 2 – User Details – Known Facts

The completed access request should be emailed to the MERMAN Data Manager:

MERMAN Management Team
British Oceanographic Data Centre
Joseph Proudman Building
6 Brownlow Street
Liverpool
L3 5DA
Tel: 01517954861
Fax: 01517954912
E-mail:merman@bodc.ac.uk

The IT Helpdesk will register initial information about the user and send the user two emails detailing how to enrol onto the system.

2.1.2 Removing Users

It is the responsibility of the Responsible Officers to inform BODC when a user account is no longer required in the event of that member of staff leaving or moving to a different project. The number of Business Objects licences is limited and we therefore need to manage the number in use.

The Responsible Officer should email the management team at merman@bodc.ac.uk to inform us.

2.2 Logon to MERMAN – First Time User

2.2.1 Overview

In order to access the MERMAN database the steps below must be followed in sequence:

1. 'Known Facts' about the user registered by the IT Helpdesk – See Figure 2 – Known Facts. User will receive two emails at the same time.
2. Email 1 – Defra Portal Enrolment Details are sent to the user
3. Email 2 – MERMAN Enrolment Details are sent to the user
4. User to enrol on to Defra Portal
5. User to enrol on to MERMAN

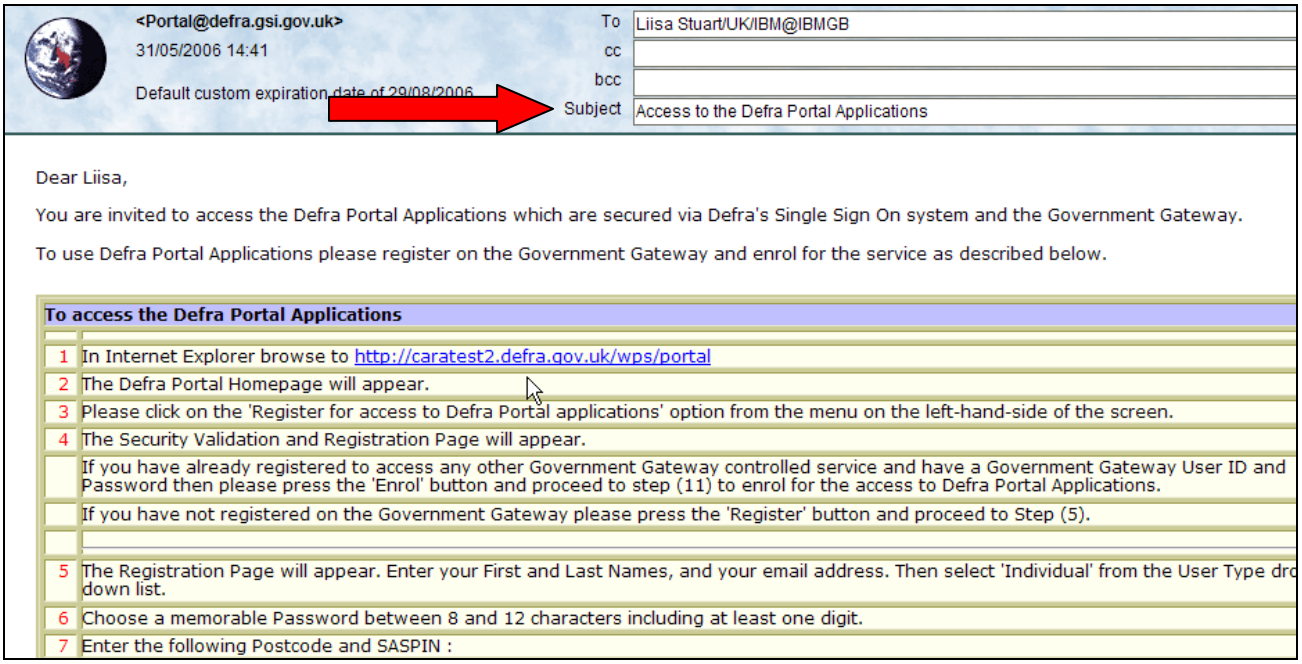
The MERMAN database is accessed via a portal from the internet. The Defra Portal is shared with other Defra applications and thus the initial registration may seem cumbersome. After the user has enrolled with both the Defra Portal and the MERMAN database they will be able to use the system with a single username and password.

2.2.2 Enrol for Defra Portal

When the helpdesk has registered the user's 'Known Facts', the user will receive two emails; the first one being the Defra Portal Enrolment details.

The email provides detailed instructions on the enrolment steps. **At the end of the enrolment a user ID is allocated which the user must keep safe.**

An example of the email is as follows:



<Portal@defra.gsi.gov.uk>
31/05/2006 14:41
Default custom expiration date of 29/08/2006

To: Liisa Stuart/UK/IBM@IBMGB
cc:
bcc:
Subject: Access to the Defra Portal Applications

Dear Liisa,

You are invited to access the Defra Portal Applications which are secured via Defra's Single Sign On system and the Government Gateway.

To use Defra Portal Applications please register on the Government Gateway and enrol for the service as described below.

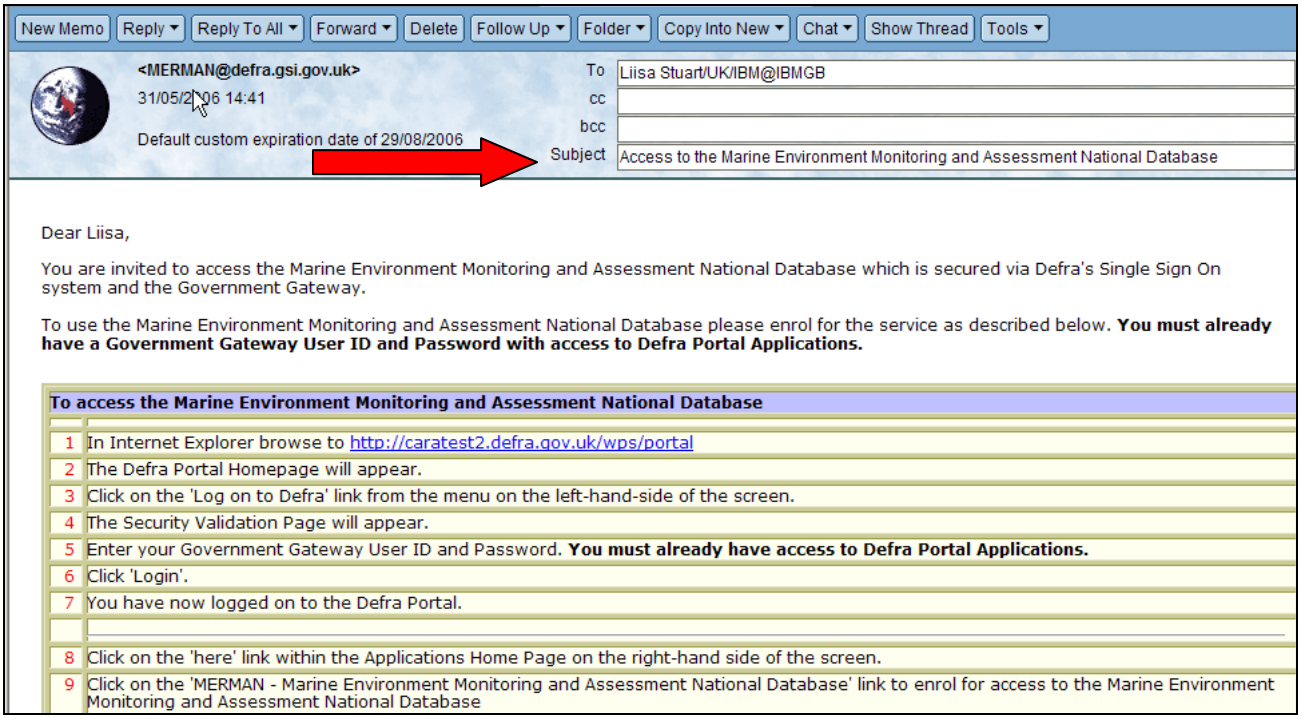
To access the Defra Portal Applications

1	In Internet Explorer browse to http://caratest2.defra.gov.uk/wps/portal
2	The Defra Portal Homepage will appear.
3	Please click on the 'Register for access to Defra Portal applications' option from the menu on the left-hand-side of the screen.
4	The Security Validation and Registration Page will appear.
	If you have already registered to access any other Government Gateway controlled service and have a Government Gateway User ID and Password then please press the 'Enrol' button and proceed to step (11) to enrol for the access to Defra Portal Applications.
	If you have not registered on the Government Gateway please press the 'Register' button and proceed to Step (5).
5	The Registration Page will appear. Enter your First and Last Names, and your email address. Then select 'Individual' from the User Type dro down list.
6	Choose a memorable Password between 8 and 12 characters including at least one digit.
7	Enter the following Postcode and SASPIN :

Figure 3 – Email Containing Instructions for Accessing the Defra Portal Applications

2.2.3 Enrol for MERMAN

The second email details the steps to be followed to enrol for MERMAN. The user will need the user ID allocated in the previous step.



New Memo | Reply | Reply To All | Forward | Delete | Follow Up | Folder | Copy Into New | Chat | Show Thread | Tools

<MERMAN@defra.gsi.gov.uk>
31/05/2006 14:41
Default custom expiration date of 29/08/2006

To: Liisa Stuart/UK/IBM@IBMGB
cc:
bcc:
Subject: Access to the Marine Environment Monitoring and Assessment National Database

Dear Liisa,

You are invited to access the Marine Environment Monitoring and Assessment National Database which is secured via Defra's Single Sign On system and the Government Gateway.

To use the Marine Environment Monitoring and Assessment National Database please enrol for the service as described below. **You must already have a Government Gateway User ID and Password with access to Defra Portal Applications.**

To access the Marine Environment Monitoring and Assessment National Database

1	In Internet Explorer browse to http://caratest2.defra.gov.uk/wps/portal
2	The Defra Portal Homepage will appear.
3	Click on the 'Log on to Defra' link from the menu on the left-hand-side of the screen.
4	The Security Validation Page will appear.
5	Enter your Government Gateway User ID and Password. **You must already have access to Defra Portal Applications.**
6	Click 'Login'.
7	You have now logged on to the Defra Portal.
8	Click on the 'here' link within the Applications Home Page on the right-hand side of the screen.
9	Click on the 'MERMAN - Marine Environment Monitoring and Assessment National Database' link to enrol for access to the Marine Environment Monitoring and Assessment National Database

Figure 4 - Email Containing Instructions for Accessing MERMAN

2.3 Logon to MERMAN – Normal Logon

When the user has enrolled for both the Defra Portal and MERMAN application, the user will be able to use the normal logon procedure from therein.

Follow this link to the Defra Portal:

https://secure.services.defra.gov.uk/wps/myportal/merman

Enter User ID and password in the screen below:

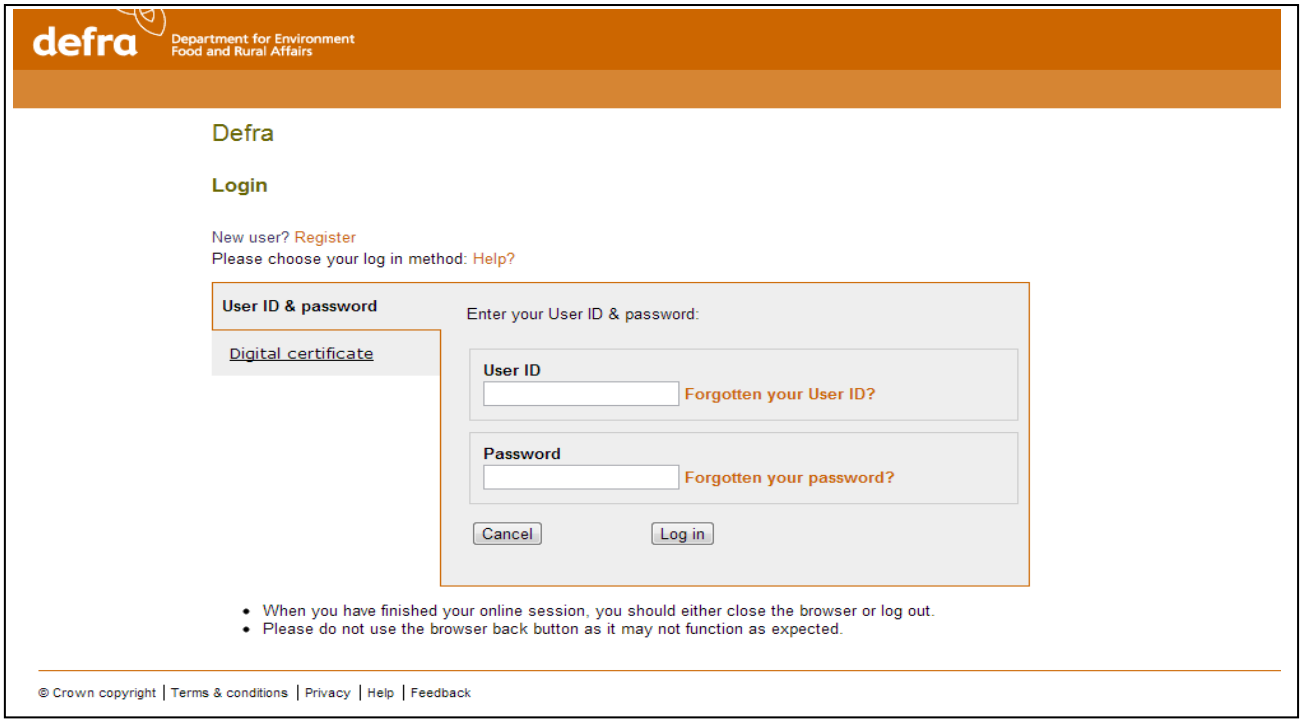

defra
Department for Environment Food and Rural Affairs
Defra
Login
New user? Register
Please choose your log in method: Help?
User ID & password
Digital certificate
Enter your User ID & password:
User ID
Forgotten your User ID?
Password
Forgotten your password?
Cancel
Log in
When you have finished your online session, you should either close the browser or log out.
Please do not use the browser back button as it may not function as expected.
© Crown copyright | Terms & conditions | Privacy | Help | Feedback

Figure 5 – Security Validation Screen

The Defra Portal home page opens. This will show access to the applications which you have permission to see.

You should see either File Upload or Business Objects or both.

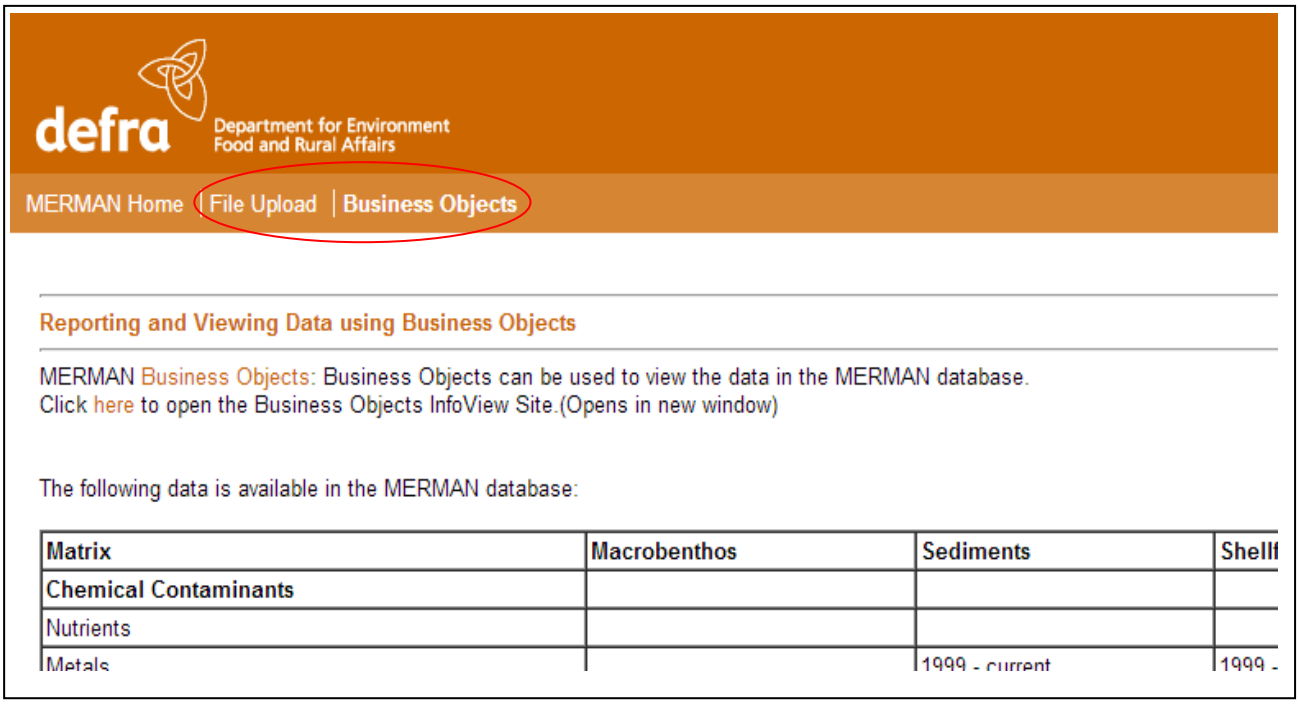

defra
Department for Environment
Food and Rural Affairs
MERMAN Home
File Upload
Business Objects
Reporting and Viewing Data using Business Objects
MERMAN Business Objects: Business Objects can be used to view the data in the MERMAN database.
Click here to open the Business Objects InfoView Site.(Opens in new window)
The following data is available in the MERMAN database:
Matrix
Macrobenthos
Sediments
Chemical Contaminants
Nutrients
Metals
1999 - current

Figure 6 – Defra Portal Home Page

Selecting MERMAN Home opens the MERMAN home page:

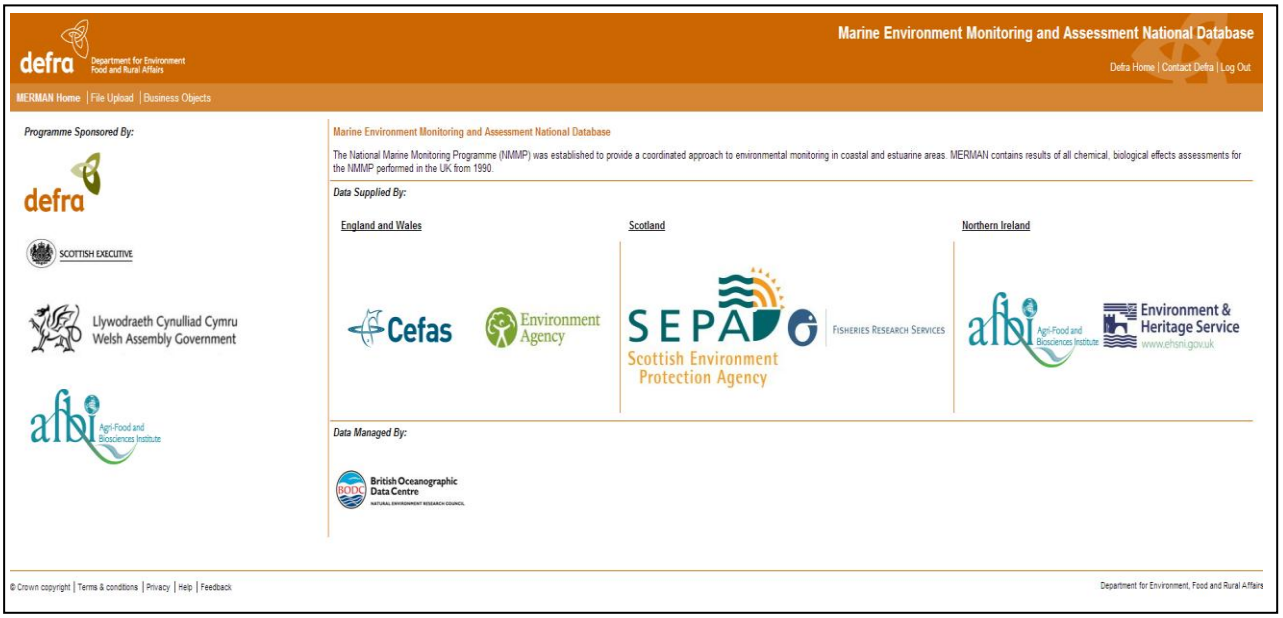

Marine Environment Monitoring and Assessment National Database
Defra Home | Contact Defra | Log Out
MERMAN Home | File Upload | Business Objects
Programme Sponsored By:
Marine Environment Monitoring and Assessment National Database
The National Marine Monitoring Programme (NMMP) was established to provide a coordinated approach to environmental monitoring in coastal and estuarine areas. MERMAN contains results of all chemical, biological effects assessments for the NMMP performed in the UK from 1990.
Data Supplied By:
England and Wales
Scotland
Northern Ireland
Cefas
Environment Agency
SEPA
Scottish Environment Protection Agency
Fisheries Research Services
Environment & Heritage Service
Data Managed By:
British Oceanographic Data Centre
© Crown copyright | Terms & conditions | Privacy | Help | Feedback
Department for Environment, Food and Rural Affairs

Figure 7 - MERMAN Home Page

From the MERMAN home page the user can select either the ‘File Upload’ for data submission or ‘Business Objects’ option for downloading the data.

3. Submitting Data

3.1 Obtaining Input Spreadsheets

It is important that users always use the latest version of the data input sheet template when preparing their submission. The MERMAN Data Manager is responsible for keeping the templates up to date with any changes in the reference data.

The spreadsheets are available for download from the Defra website. Submitters will be informed of updates.

There are eight different input spreadsheets:

a. Sample
   i. Biota
   ii. Water
   iii. Sediment
   iv. Biology
   v. RID
b. Quality Data
   i. AQC for contaminants
   ii. Proficiency Testing (PT) data for contaminants
   iii. AQC for Biology
   iv. AQC for biological effects

It is important to note that the database is setup to accept one data file per data type per CMA per year. Any further submissions of the same data file made will overwrite what has been submitted previously for that data type for that year. Therefore when submitting an updated version, it is important to make sure that the whole file is resubmitted rather than a partial submission comprising the corrected data only.

3.2 Populating Input Spreadsheets

On opening the input sheet template:

Press Enable Macros button

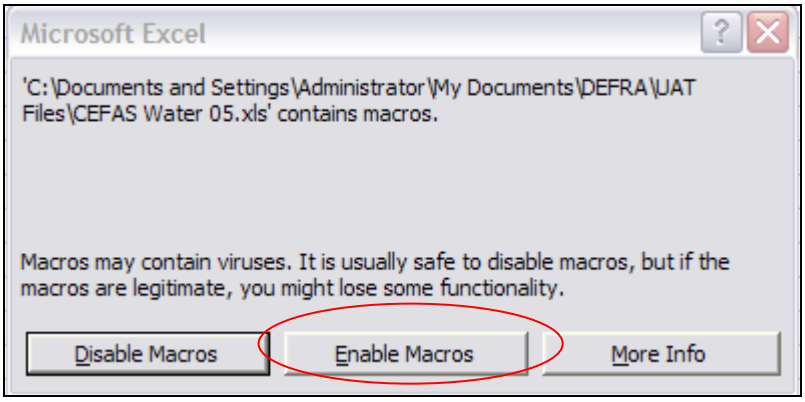

Microsoft Excel
'C:\Documents and Settings\Administrator\My Documents\DEFRA\UAT Files\CEFAS Water 05.xls' contains macros.
Macros may contain viruses. It is usually safe to disable macros, but if the macros are legitimate, you might lose some functionality.
Disable Macros
Enable Macros
More Info

Figure 8 – Enable Macros Pop-up

The input sheet opens:

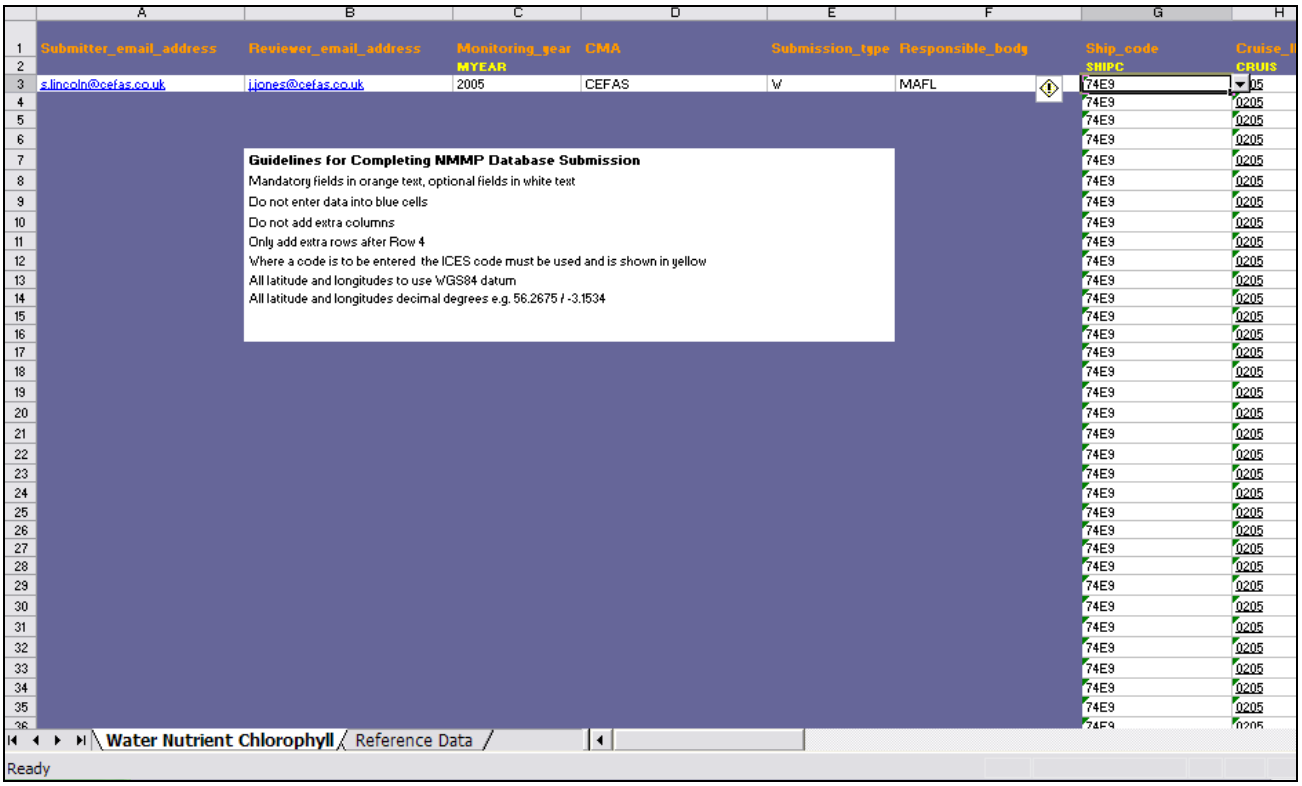


Figure 9 – Sample Data Input Sheet

The input file has two sheets; the data entry sheet and the reference data sheet that contains the look up values for the drop-down lists. These will be updated by the Data Manager in accordance with the Green Book and ICES requirements and therefore it is important to always use the latest version.

Note – the macros within the Input Spreadsheet only work with MS Excel version 2000 or greater. If you are using a version of MS Excel which is lower than 2000, if the drop down is used to populate the cell, the description relating to the code selected will need to be removed manually.

Populating the input sheet:

- **Orange cells MUST be filled in. They require mandatory information. Without these, the spreadsheet will be rejected by the system.**

3.2.1 Sample Data Input Sheets:

Field Name	Description	Instructions
Submitter_email_address	Email address of the person	The consequent email detailing

Field Name	Description	Instructions
	submitting data into the NMMP database	whether the data submission has been successful or not will be sent to this address
Reviewer_email_address	Email address of the CMA business owner	The consequent email detailing whether the data submission has been successful or not will be sent to this address for review purposes
Monitoring_year	Nominal reporting year for a sample	***See Note 1.1***
CMA	Competent Monitoring Authority	
Submission_type	The type of submission; Water/Sediment/Biota/Biology/ RID/AQC/AQC Biology/PT	Codes as per the drop-down menu when macros are enabled
Submitting_laboratory	The laboratory responsible for submitting the CMA's submission in the CSEMP database	Codes as per the drop-down menu when macros are enabled
Ship_code	Platform / Ship code	Codes as per the drop-down menu when macros are enabled
Cruise_ID	Cruise identifier (series of sampling occasions)	Specific to individual laboratory ***See Note 1.2***
Sample_reason1	Monitoring programme	**See *Note 1.3 –*** please note this should be consistent within a sample
Sample_reason2	Monitoring programme	**See *Note 1.3 -*** please note this should be consistent within a sample
Sample_reason3	Monitoring programme	
Sampling_lab_code	Sampling laboratory code	Codes as per the drop-down menu when macros are enabled
Sample_region	Region that sample was taken	Leave blank – this information is recorded in the station name
Stratum	Geographic sampling area	Leave blank – this information is recorded in the station name
Sampling_strategy	Strategy employed to obtain sample	Codes as per the drop-down menu when macros are enabled
Sample_purpose	Purpose of monitoring	Codes as per the drop-down menu when macros are enabled. ***See Note 1.4.***
Station_number	Station number	Codes as per the drop-down menu when macros are

Field Name	Description	Instructions
		enabled (The type of station (e.g. se, wa, fi, sh) has been appended to the number). ***See Note 1.4.***
Sample_date	Date sample collected	Format dd/mm/yyyy
Sample_start_time	Start time of sample collection	Format HH:MM – 24HR
Sample_end_time	End time of sample collection	Format HH:MM – 24HR
Latitude_degrees	Latitudinal position of sample collection	Format: decimal degrees For example 52.0830
Longitude_degrees	Longitudinal position of sample collection	Format: decimal degrees For example -6.536
Sample_number	Sample number (for each species in haul, each sediment core, each sediment grab, each water bottle)	Please refer to ***section 3.2.7*** for detailed information on how to fill in this field
Sub_sample_number	Sub-sample number/identification	Please refer to ***section 3.2.7*** for detailed information on how to fill in this field
Laboratory_sample_number	Unique sample number assigned by Laboratory	At laboratory's discretion
Matrix	Matrix analysed	Codes as per the drop-down menu when macros are enabled
Sampler_type	Sampler type	Codes as per the drop-down menu when macros are enabled
Analytical_lab_code	Laboratory or institute responsible for the analysis and measurement of the parameter value or the laboratory responsible for sorting and identification of biological samples	Codes as per the drop-down menu when macros are enabled
Analytical_year	The nominal year in which the Analytical Lab performs the sample analysis. This typically is the same nominal year as the year of Monitoring but doesn't have to be.	This year links to the AQC information of the same year – not necessarily the same as the sampling year if analysed later.
Determinand_code	Parameter code	Codes as per the drop-down menu when macros are enabled
Determinand_units	Measurement unit	Codes as per the drop-down menu when macros are enabled
Basis	Status of weight measurement	Codes as per the drop-down menu when macros are enabled

Field Name	Description	Instructions
Determinand_qualifier	Dependent on detection limits	***See Note 1.5***
Determinand_value	Actual value measured	
Water_sample_depth	Water & biota: Pressure/depth where sample is taken	Value in metres (m)
Sediment_depth_Upper/Lower	Sediment depth (m) – upper, lower levels in sediment	For sediment the upper level is generally 0m (i.e. ground level)

Note 1.1 - ICES define the Monitoring Year as the 'nominal' year of sampling for a given monitoring programme. For some internationally coordinated monitoring programmes, sampling, reporting of data, and data assessment activities are based on an annual sampling programme. However, it is not always possible to complete the necessary sampling in the 'nominal' sampling year; winter sampling may continue into the early part of the following year. Thus, the 'Monitoring year' entry will, in most cases, be identical with the year component of the 'Sampling date' (SDATE) data field (i.e., the year in which the sample was collected). However, it may be that in some cases the year reported in the 'Sampling date' will be the calendar year after 'Monitoring year' entry, for instance with nutrient data.

Note 1.2. - The programming for the creation of the ICES report means that the cruise code must be different on each occasion that a station is visited in one monitoring year. For **sediment** submissions this will not be an issue as in most instances a station is visited just once per year. However, for **biota** and **water** submissions some stations are visited on a number of different dates in one monitoring year. If necessary the cruise code must be changed to be different on each sampling date. In past cases some CMAs have added a suffix to the cruise code to overcome this problem while still linking to the original cruise code used within their organisation.

Note 1.3 - Only data that has a Sample Reason 1, 2 or 3 of 'CEMP' will be transferred to ICES. For biota, sediment and biology data the codes CEMP and NATL should be used in Sample Reason fields 1 and 2. For CW data the codes CEMP, EMP should be used in Sample Reason fields 1 and 2. 'NMP' is now an obsolete term and should not be used. If data submitted are to be used for national purposes only then the code NATL should be entered in Sample Reason 1.

Note1.4. - Opportunistic stations are suitable for both spatial purposes and biological effects purposes and all water opportunistic stations also suitable for eutrophication purposes. Thus, the only difference will be that the opportunistic stations are 'spatial', whereas the original stations are 'temporal'. Submitter should reflect these facts in their submissions to MERMAN in the Sample Purpose field.

Note1.5. – *Where measured results are below the detection limit reported in the AQC submission sheet, the best option is to select QFLAG='<' and set the RESULT='DETLI'.*

3.2.2 Biology Input Sheet:

Field Name	Description	Instructions
Mesh_size	Mesh size of net or sieve	500um or 1000um
Sample_depth_min	Minimum depth of sample (m) i.e. the sediment bed (from	Value in metres (m)

	where grab is taken)	
Sample_depth_max	Maximum depth of sample (m)	Value in metres (m)
Species	Latin name of species (or aggregated genus/family)	Codes as per the drop-down menu when macros are enabled
Stage_development	Stage of development	Codes as per the drop-down menu when macros are enabled
Sex		Codes as per the drop-down menu when macros are enabled
Species_group_size		Codes as per the drop-down menu when macros are enabled
Physical_state	Physical state at time of sampling	Codes as per the drop-down menu when macros are enabled
Sampler_Area	Insert the area of sediment sampling gear	Value in cm2
Identification_type	Shows Identification level e.g. Genus	Codes as per the drop-down menu when macros are enabled
Abundance	Number of organisms found in sample	This must be filled. However if the number cannot be physically counted, the following column 'Abundance code' must be filled instead.
Abundance_code	SACFORP code e.g. P for Presence	Codes as per the drop-down menu when macros are enabled Used when the physical number of the species cannot be counted. This must be filled if there is no value in abundance
Biomass_dry_weight	Value measured	
Biomass_wet_weight	Value measured	
Biomass_ash_free_dry_weight	Value measured	

3.2.3 Chemistry Contaminants AQC Input Sheet:

Field Name	Description	Instructions
CMA	Competent Monitoring Authority	
Submission_type	The type of submission;	AQC

Field Name	Description	Instructions
Data_type	ICES Data Type code	Codes as per the drop-down menu when macros are enabled
Analytical_lab_code	Laboratory or institute responsible for the analysis and measurement of the parameter value	Codes as per the drop-down menu when macros are enabled
Determinand_code	Parameter Code	Codes as per the drop-down menu when macros are enabled
Determinand_units	Measurement Units	Codes as per the drop-down menu when macros are enabled
ACCRED	Accreditation status of the lab for the specified determinand	Codes as per the drop-down menu when macros are enabled
METCX	Method of chemical extraction	Codes as per the drop-down menu when macros are enabled
METOA	Method of analysis	Codes as per the drop-down menu when macros are enabled
METPT	Method of pre-treatment	Codes as per the drop-down menu when macros are enabled
DETLI	Detection limit value of analysis of determinand	See ***Note 1.4***
ICCOD	Intercalibration codes for 3.2 format	Not required. See ***Note 1.5***
CONCH	Reference material type used as control chart basis	Codes as per the drop-down menu when macros are enabled
CRMCO	Certified reference material codes	Codes as per the drop-down menu when macros are enabled ***Note 1.6***
CRMMB	Reference material – basis of determination used in control chart analysis	
CRMEV	Control chart expected value	See ***Note 1.7***.
CRMMV	Control chart mean value found	Mean value calculated
CRMNM	Control chart – number of measurements of Reference Material	Number of measurements of reference material taken to acquire mean value.
CRMPE	Control chart – period of measurement (weeks)	Period of time over which measurements are made
CRMSD	Reference material's standard deviation - standard deviation	Taken from reference certificate
SDNO	Standard Deviation number of measurements	Number of measurements used to establish std devn for control chart limits
CRMWN	Number of breaches of warning limits during period for which limits apply	

Note 1.4. This value should be the **measured** limit of detection **not** the **target** limit of detection as defined by NMCAG. **All sample results should therefore be greater than this detection limit.**

However if your lab's LOD < target LOD (as specified by Green Book), report target LOD.

Note 1.5. This column (N) has been filled with 'not applicable' and hidden in the current version of the templates

Note 1.6. Where you have more than one LRM for a determinand, the LRM with results closest to the values of the samples should be used.

Note 1.7. The value must be changed if necessary to comply with the units that MERMAN uses for each parameter.

3.2.3.1 Further AQC Submission Information:

One of the main strengths of MERMAN is that all data within it are quality-controlled to the same standard.

MERMAN has an inbuilt 'data filter', based on the method developed by several CSEMP members.[1] As both the sample data and the quality control data are submitted to MERMAN, the filter calculates a score based on the QC information, providing an automated quality control mechanism for the sample data. Data that pass the filter (i.e. deemed to be of a good enough standard) are transferred to ICES and are viewable by the public on request. Those data that fail the data filter remain in the database, however are only seen by the submitters. CMAs are able to view their QC data alongside the sample data to see where improvements need to be made.

The filter takes into account several aspects of internal QC, for instance whether a lab is accredited, the grade of reference material and the precision of the technique used. The lab is scored for each aspect of the QC process for each determinand. Internal QC contributes 70% to the final score and external PT contributes 30%. **It is therefore feasible for a lab to 'pass' a determinand if there is only internal QC supplied.** The final score is out of 100 and a pass is given to determinands over 40 or 45, depending on their type, e.g. organics or metals.

The sample data and the AQC are linked via the analytical laboratory code supplied in both the sample and the AQC input sheets. If these codes are inconsistent with each other, the sample data won't have any QC data attached to it and will therefore not pass the filter.

Labs must make sure that the analytical codes submitted are correct. When analyses have been subcontracted out to another laboratory, it is the responsibility of the analytical laboratory to submit the QC data to MERMAN (if they are an official CMA). However, it is also important that the sample data input sheet submitted by the sampling CMA has been assigned the correct analytical lab code. There is a report in Business Objects (**AQC_data_cross-check)** designed to easily check this link and it is the RO's responsibility to run this report before unholding their data.

The National Marine Chemistry Assurance Group discuss any new monitoring determinands and set the target limit of detection as well as other expected values, such as standard deviation % and bias %. These values are loaded into MERMAN's reference data to allow the data filter to calculate the correct scores. These values should also be updated in the Green Book.

There are some determinands for which there is AQC information but no PT data (no QUASIMEME scheme available) such as Brominated Flame Retardants and alkyl-PAHs. It has been agreed by NMCAG that in these cases where it is still possible to pass the data filter with AQC data only then laboratories should always enter this data. In the event of those determinands not passing using just the AQC data, then after agreement with the NMCAG chair the CMAs can enter those determinands into the Biology AQC template which will then bypass the data filter.

[1] For further details, the paper can be found at: "Implementation of a "data filter" for the UK National Marine Monitoring Programme", Accred Qual Assur (2002) 7:60-65.

3.2.4 Chemistry Contaminants PT Input Sheet:

Field Name	Description	Instructions
Submission_type	The type of submission; Water/Sediment/Biota/Biology/RID/AQC/ AQC Biology/PT	PT
Data_type	ICES Data Type code	Codes as per the drop-down menu when macros are enabled
Analytical_lab_code	Laboratory or institute responsible for the analysis and measurement of the parameter value or the laboratory responsible for sorting and identification of biological samples	Codes as per the drop-down menu when macros are enabled
ICCOD V3.2	Intercalibration codes for 3.2 format	Code as defined by QUASIMEME
ICCOD V2.2	Intercalibration codes for 2.2 format	Code is made up of the QUASIMEME round and exercise number and includes the matrix-specific code
Assigned_value	Value assigned by Quasimeme as Target concentration of determinand for PT assessment	
Determinand_code	Parameter Code	Codes as per the drop-down menu when macros are enabled
Determinand_units	Measurement Units	Codes as per the drop-down menu when macros are enabled
Mean	Laboratory result	Actual value measured by analytical laboratory. *This field will not currently accept the < sign.*
Z_Score	Value assigned by QUASIMEME	MERMAN can currently only accept numeric Z-scores – these are used to calculate a test PASS/FAIL which is used in the filter.
Value	Ignore this field, which is hidden	

3.2.4.1 Further PT Submission Information:

PT data (usually set by QUASIMEME) account for 30% of the final AQC score in the data filter. Labs are encouraged to participate in proficiency testing. The data are submitted to MERMAN in the PT_input_sheet. Currently, MERMAN cannot cater for some specific results and these must be omitted from the submission. These results are:

- Unable to submit a '<' character in the MEAN (result) field (e.g. LOD)
  Currently this symbol cannot be submitted in the result field. A change to allow this should not have any follow-on consequence to the filter as the filter only uses the z-score in its calculation. However it is generally these results that QUASIMEME assign a non-numeric Z-Score (see below) which does have a direct consequence on the filter.

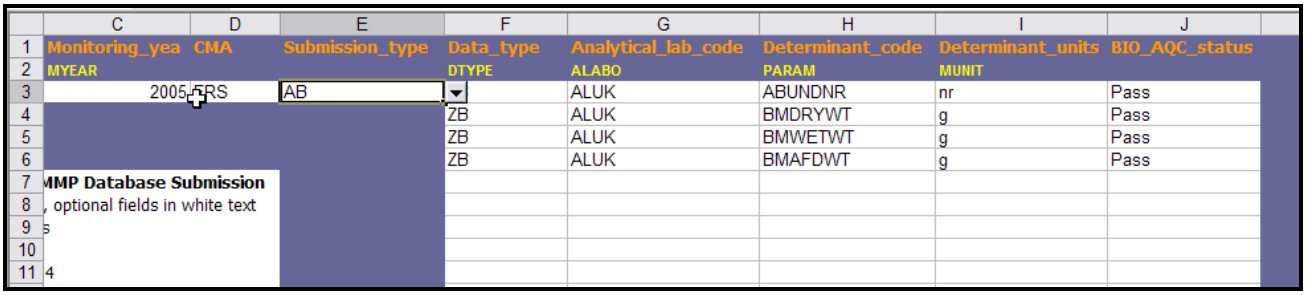
- Unable to submit a non-numeric z-score
  QUASIMEME can report a character result, if there isn't sufficient information to calculate a z-score (for instance when there are not enough results to statistically generate a meaningful z-score). Letters such as 'C' (consistent) and 'I' (inconsistent) can be given instead, however MERMAN cannot currently accept these.

We hope to be able to enhance MERMAN in the future to cope with these results and prevent any further loss of data. However we are waiting for advice from NMCAG on how to progress, particularly with converting a non-numeric Z-score into a meaningful and fair Z-score result.

3.2.5 Biology AQC Input Sheet:

This input sheet is used for determinands from the benthic invertebrate data submission – currently the only determinands used for the benthic invertebrate data submission are ABUNDANCE and BIOMASS.

Example:



	C	D	E	F	G	H	I	J
1	Monitoring_yea	CMA	Submission_type	Data_type	Analytical_lab_code	Determinant_code	Determinant_units	BIO_AQC_status
2	MYEAR			DTYPE	ALABO	PARAM	MUNIT	
3	2005	ERS	AB		ALUK	ABUNDNR	nr	Pass
4				ZB	ALUK	BMDRYWT	g	Pass
5				ZB	ALUK	BMWETWT	g	Pass
6				ZB	ALUK	BMAFDWT	g	Pass
7	MP Database Submission							
8	, optional fields in white text							
9	s							
10								
11	4							

Figure 10 – Biology AQC Input Sheet

This input sheet is also used for those determinands from other data types which do not currently have an AQC programme, for instance temperature, nitrate, dissolved oxygen, length and weight measurements. This is because, in order for data to be transferred to ICES, a determinand has to have a status of 'PASS'. In order for CEMP determinands which do not have AQC to be transferred, they should be added to this biology AQC input sheet to get an automatic 'PASS' status.

Please note that a determinand may still pass the data filter if it just has AQC information but is not in the QUASIMEME scheme (i.e. has PT data). The pass threshold remains the same; however the maximum score that can be achieved is 70 with AQC alone. In these instances the AQC information for these parameters should still be submitted to MERMAN. If the parameter is automatically set to pass via the Biology AQC template, the sample data for that parameter may be downgraded in ICES assessments due to the lack of associated AQC data for that parameter.

Field Name	Description	Instructions
Submission_type	The type of submission; Water/Sediment/Biota/Biology/RID/AQC/AQC	AB

Field Name	Description	Instructions
	Biology/PT	
Data_type	ICES Data Type code	Codes as per the drop-down menu when macros are enabled
Analytical_lab_code	Laboratory or institute responsible for the analysis and measurement of the parameter value or the laboratory responsible for sorting and identification of biological samples	Codes as per the drop-down menu when macros are enabled
Determinand_code	Parameter Code	Codes as per the drop-down menu when macros are enabled
Determinand_units	Measurement Units	Codes as per the drop-down menu when macros are enabled
BIO_AQC_status	Status of the AQC data	For 'abundance' and 'biomass' the status will be assigned by NMBAQC group. If 'auto-passing' chemistry determinands this should be set to PASS
METOA	Method of analysis	Codes as per the drop-down menu when macros are enabled
METCX	Method of chemical extraction	Codes as per the drop-down menu when macros are enabled
METPT	Method of pre-treatment	Codes as per the drop-down menu when macros are enabled
DETLI	Detection limit value of analysis	This value should be the **measured** limit of detection **not** the **target** limit of detection as defined by NMCAG. All sample results should therefore be greater than this detection limit.
CRMMV	Reference material mean value found	Mean value calculated
CRMSD	Reference material's standard deviation - standard deviation	Taken from reference certificate

3.2.5.1 Further Biology_AQC Submission Information

It must be remembered that both the biology determinands (abundance, biomass) and those chemistry determinands (temperature, salinity), for which there is AQC, are submitted in the **same** Biology AQC sheet per CMA. It is often the case that Biology AQC values come through later in the year than those from the Chemistry AQC. It is possible to submit the determinands you have initially, **adding** any later determinands to the bottom of the same sheet for resubmission. This prevents any AQC data being overwritten in the database. Communication between biology submitters and chemistry submitters is key!

BODC has recently upgraded the Biology_AQC template to allow for a greater amount of information to be submitted. This has been driven by new ICES requirements for additional information at assessment. All chemistry contaminants should be submitted with an associated uncertainty value and analytical methods are required for all determinands. Previously the Biology_AQC template did not store any of the above information; BODC have therefore added 6 new fields to the template. The input rules are as follows:

Uncertainty fields:

Uncertainty values are currently only required for "chemistry" parameters. Please fill in all three of DETLI, CRMMV and CRMSD for chemistry-parameters. An error is produced if they are partially completed. It is not necessary to provide this information for physical parameters such as TEMP, PSAL, NTRA, grain sizes, weight and length measurements. If you do however provide this information you will need to supply all three fields.

Methods and Analytical fields:

The methods information, METPT, METCX and METOA, needs to be provided for ALL parameters. Please use the drop-down menus.

3.2.6 Bioeffects AQC Input Template:

This template and functionality was added in February 2009 to the application. The data is held to allow:

- the BEAQC group to assess national performance,
- pass or fail of parameters that are taken for biological effects (and therefore pass or fail the data filter for transfer of the data to ICES),
- any ICES registered ICCOD codes to be transferred to the ICES report

Any duplication with the submissions in the Biology AQC should be avoided. This will require careful coordination with Responsible Officers.

The codes and description of the fields used in the BEAQC template are shown below and the parameters to be entered in the BEAQC template and the recommended entries to the METOA and REFSK fields are shown in the following table.

Title	Code	Description
Submitter_email_address		E-mail address of the person submitting the file to the MERMAN application
Reviewer_email_address		E-mail address of the coordinator of the submissions for any one organisation. In smaller organisations it may be the same as the submitter

Analytical Year	AYEAR	The year which the measurements are made in.
CMA		The organization you work in
Submission_type		This is the template type (BEQ for Biological effects)
Biological Effect Measurement Type	BETYPE	This is the type of biological effect measurement and once selected determines which other fields should be completed (see Merman User Guide for details)
Data Type Measurement is made in	DTYPE	This is the data type which may be biota, sediment or water. For most biological effects it will be biota, with the exception of bioassays in sediment and water)
Analytical Laboratory	ALABO	The analytical laboratory that made the measurements
Method of Analysis	METOA	The analytical laboratory that made the measurements
Determinand_Code	PARAM	Choose the most appropriate method of analysis (see MERMAN User Guide for suggestions)
Unit Of Measurement	MUNIT	Choose the correct unit of measurement for the parameter
Protocol Used	REFSK	Choose the most appropriate protocols (see MERMAN User Guide for suggestions)
Laboratory UKAS Accreditation Status	ACCRED	If the laboratory making the measurements has UKAS accreditation for the method then indicate here
Describe Internal AQC	INTAQC	Describe any internal laboratory AQC in less than 500 characters, such as chemical standards, training new staff, tests of competence across analytical staff, etc
Type of Reference Material used for Intercalibration	CONCH	Choose which type of reference material is most appropriate for the inter laboratory intercalibration that has been performed
Intercalibration Scheme	INTSCH	Choose the appropriate intercalibration scheme. ‘Other ICES registered’ is for intercalibrations with for example MEDPOL. ‘Unregistered’ is for an informal swapping of samples between a small number of labs.
Intercalibration Laboratory Provider	ALABO_2	Where an informal scheme has been used (e.g. samples swapped between labs) state laboratory and country that has supplied the sample (e.g. CEFAS, UK). Max characters 100. Cell is mandatory if INTSCH is 'Other ICES registered' or 'Unregistered'
Intercalibation Exercise Code	ICCOD	Choose the appropriate intercalibration code. Note: if the scheme is not registered with ICES than the code will have been chosen by BODC.
Reference Material Expected Value	CRMEV	Give the expected value for the measurement made for the intercalibration
Reference Material Measured Value	CRMMV	Give the measured value for the intercalibration measurement completed by your laboratory
Reference Material Standard Deviation of the Measured Mean	CRMSD	Give the standard deviation of the intercalibration measurement completed by your laboratory (Note: for some measurements it will be a single result so this field may not apply)

Z-Score		If a z-score for the intercalibration has been provide then give here
Source of Reference Seawater*	SRCWT	This field is specific to bioassays
Latin Name of Test Organism*	SPECI	This field is specific to bioassays
Reference Code List used for Species ID*	RLIST	This field is specific to bioassays
Origin of Test Specimen*	ORGSP	This field is specific to bioassays
BEAQC Assessment of Quality Status	QCSTAT	Give here your assessment of if the measurement has sufficient AQC. This will subsequently be approved by the BEAQC group.
Reference Material Basis of Determination*	CRMMB	This field is at present spare
Number of Measurements*	CRMNM	This field is at present spare
Reference Testing Period*	CRMPE	This field is at present spare
Intercalibration Reference Material Code*	CRMCO	This field is at present spare

*To allow easier use of the template the 4 last fields which are currently not used are hidden and the bioassay specific fields are hidden or shown by use of the + or - button in the bar above the spreadsheet.

Bioeffects type	**Parameter**	**Method of Analysis - METOA**	**Protocols - REFSK**
EROD	EROD	FLM : Fluorometric determination	T23 : Times No. 23 Determinantion of CYP1A-dependent mono-oxygenase activity in dab by fluorimetric measurement of EROD activity
DNA	DNAAD	To be confirmed by BEAQC	T25 : Times No. 25 Measurement of DNA adducts in fish by 32P-postlabelling
MT	MT	To be confirmed by BEAQC	T26 : Times No. 26 Quantification of metallothionein (MT) in fish liver tissue
PYR	PYR1OH	To be confirmed by BEAQC; (Possibly FLM : Fluorometric determination)	T39: Times No. 39 Review of analytical methods for determining metabolites of polycyclic aromatic compounds (PACs) in fish bile.

IMP and INT	VDSI, RPSI, IMPF%, LNFPE	GRS : Gross examination	T24 : Times No. 24 Use of imposex in the dogwhelk (Nucella lapillus) as a bioindicator of tributyltin (TBT) pollution
Bioassay Water	MORT%, PNR, REDF%	To be confirmed by BEAQC (Possibly CMP : Comparative analysis)	T11 : Times No. 11 Oyster (Crassostrea gigas) embryo bioassay
Bioassay Sediment	MORT%, PNR and REDF%	To be confirmed by BEAQC (Possibly CMP : Comparative analysis)	T29 : Times No. 29 Sediment bioassay using the polychaete Arenicola marina
Bioassay Sediment	MORT%, PNR and REDF%	To be confirmed by BEAQC (Possibly CMP : Comparative analysis)	T28 : Times No. 28 Corophium sp. sediment bioassay & toxicity test
Fish Disease	LYMP CYS, LIVE NOD , SKEL DEF, STEP STO, SKIN ULC, XGIL LES, HPIGM, FROT, ANISAKIX, ANISAKIX, LATLIP, LEPE OPH, ACAN THO, EPID PAP, GLUG STE	GRS : Gross examination	T19 : Times No. 19 Common diseases & parasites of fish in the North Atlantic: Training guide for identification
Fish Disease	NECRCG, APOPTS, STETMA, STETMI, HEMOSD, GLYCCV, MELAMC, LYMCINF, GRANLM, FIBROS, REGNR, PHOSLD, FIBINC, HEPCNP, HYVCBE, SPNHEP, CLCFC, CLCFC, VACFC, EOSFC, BASFC, MXDFC, HEPCA, CHOLA, HEMAGA, PANACA, HEPCC, CHOLC, PANACC, HEPBCM, HEMAS, HEMAPS	HIS-PR : Histopathology - plastic resin	T38 : Times No. 38 Use of Liver Pathology of Flatfish for Monitoring Biological Effects of Contaminants

When submitting data using the BEAQC template, there are a number of rules in place to ensure that data are submitted to a set standard. As biological effects measurements are very diverse, one rule is not adequate for all measurement types. Therefore biological effects measurements have been grouped

according to what data may be available to be submitted. The groups are shown in the table below and which measurements fall in which groups is shown in the following table.

Group Code	Rules	Description
1	DTYPE, ALBO_1, METOA, PARAM, MUNIT, REFSK, ACREED, INTAQC, CONCH, INTSCH, ICCOD, QCSTAT all mandatory, ALABO_2 voluntary, CRMEV, CRMMV, CRMSD, Z_SC SRCWT, SPECI, RLIST, ORGSP should be blank	For use with biological effects measurements when an intercalibration exercise (possibly informal and so not registered with ICES) has been performed but the results to not conform to be able to provide expected, measured value, sd of measured value, and z-score. Example types include fish disease, imposex, intersex
2	DTYPE, ALBO_1, METOA, PARAM, MUNIT, REFSK, ACREED, INTAQC, QCSTAT all mandatory, ALABO_2, CONCH, INTSCH, ICCOD, CRMEV, CRMMV, CRMSD, Z_SC voluntary, SRCWT, SPECI, RLIST, ORGSP should be blank	For use with biological effects measurements when an intercalibration exercise is not established but is envisaged that results for expected, measured value, and z-score may become possible to enter in the near future. Example types include DNAAD, MT, PYR
3	DTYPE, ALBO_1, METOA, PARAM, MUNIT, REFSK, ACREED, INTAQC, CONCH, INTSCH, ICCOD, CRMEV, CRMMV, CRMSD, Z_SC, QCSTAT all mandatory, ALABO_2 voluntary, SRCWT, SPECI, RLIST, ORGSP should be blank	For use with biological effects measurements when an intercalibration exercise is established and it is suitable for results for expected, measured value, and z-score to be entered. Example types include EROD and Other.
4	DTYPE, ALBO_1, METOA, PARAM, MUNIT, REFSK, ACREED, INTAQC, CONCH, INTSCH, ICCOD, CRMEV, CRMMV, Z_SC, SRCWT, SPECI, RLIST, ORGSP, QCSTAT all mandatory, ALABO_2 and CRMSD voluntary	For use with bioassay measurements where results for expected, measured value, and z-score, and fields specific to bioassay data must be entered. Example types include Bioassays

CODE	Description	Data Stage Rules Group
FD	Fish Disease	1

IMP	Imposex	1
INT	Intersex	1
BIOW	Bioassay-Water	4
BIOS	Bioassay-Sediment	4
EROD	EROD	3
DNA	DNAAD	2
MT	MT	2
PYR	PYR1OH	2
OP	Other Parameter (protein)	3

Other points to note are that at present MERMAN assumes that there will only be one BEAQC intercalibration exercise per year per determinant. If this situation changes then some technical changes will have to be made to MERMAN.

3.2.7 Sample and Sub-sample Guidelines:

Care must be taken when completing the sample and sub-sample fields as transfer to ICES may be compromised. Please follow the guideline below for each data type. It is mandatory to complete the sub-sample field even if sub-samples have not been taken as this field identifies the record as being unique in MERMAN. In this event, '1' should be entered in the sub-sample field for the each unique sample.

3.2.9.1 Sediment Contaminants

Each individual sediment grab collected from a station is considered a sample and should be labelled A, B, C, D, E etc.

Subsequent samples taken from each grab are considered sub-samples and should be numbered 1, 2, etc. For example, one surface sample is taken from the first grab for metals + PSA (= Sample A, sub-sample 1) and a second surface sample is taken from the same grab for organics (=Sample A, sub-sample 2). Records in the submission template could look like the following table:

Determinand	**Sample**	**Sub-sample**
Cu	A	1
Zn	A	1
Pb	A	1
Cd	A	1
Al	A	1
GSMEA	A	1
PYR	A	2
PHEN	A	2
ANTH	A	2
CORG	A	2

Cu	B	1
Zn	B	1
Pb	B	1
Cd	B	1
Al	B	1
PYR	B	2
PHEN	B	2

Please see note 1.2 on page 18 on the submission of data at stations that have been visited more than once in a monitoring year.

3.2.9.2. Biology

Each individual grab or dredge is considered a sample and should be labelled: A, B, C, D, E. If only one mesh size is used then this should be specified in the mesh size field and the sub-sample field should be marked with the sample ID and the mesh size. Example below:

Species	**Mesh Size**	**Sample**	**Sub-sample**
Paranais litoralis	1000	A	A1
Nais elinguis	1000	A	A1
Limnodrilus hoffmeisteri	1000	A	A1
Heterochaeta costata	1000	A	A1
Enchytraeidae	1000	A	A1
Corophium volutator	1000	A	A1
Nais elinguis	1000	B	B1
Limnodrilus hoffmeisteri	1000	B	B1
Heterochaeta costata	1000	B	B1
Paranais litoralis	1000	B	B1
Paranais litoralis	1000	B	B1
Nais elinguis	1000	B	B1
Limnodrilus hoffmeisteri	1000	B	B1
Paranais litoralis	1000	C	C1
Nais elinguis	1000	C	C1
Limnodrilus hoffmeisteri	1000	C	C1

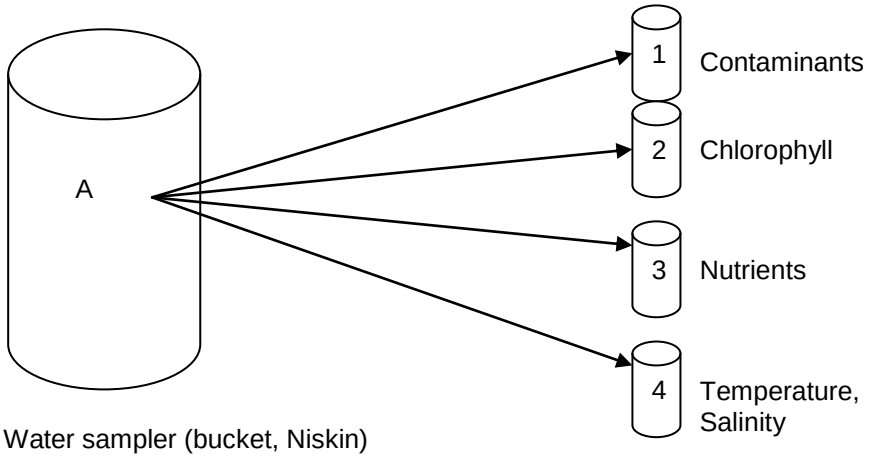
If the sample is sieved at 500 and 1000 um then the sub-sample field should be marked A0.5 and A1 respectively. Example below:

Species	Mesh Size	Sample	Sub-sample
Paranais litoralis	1000	A	A1
Nais elinguis	1000	A	A1
Limnodrilus hoffmeisteri	1000	A	A1
Heterochaeta costata	1000	A	A1
Enchytraeidae	1000	A	A1
Corophium volutator	1000	A	A1
Nais elinguis	500	A	A0.5
Paranais litoralis	500	A	A0.5
Limnodrilus hoffmeisteri	500	A	A0.5
Enchytraeidae	500	A	A0.5
Nais elinguis	1000	B	B1
Limnodrilus hoffmeisteri	1000	B	B1
Heterochaeta costata	1000	B	B1
Paranais litoralis	1000	B	B1
Limnodrilus hoffmeisteri	500	B	B0.5
Heterochaeta costata	500	B	B0.5
Paranais litoralis	500	B	B0.5
Enchytraeidae	500	B	B0.5
Corophium volutator	500	B	B0.5
Paranais litoralis	1000	C	C1
Nais elinguis	1000	C	C1
Limnodrilus hoffmeisteri	1000	C	C1
Paranais litoralis	500	C	C0.5
Nais elinguis	500	C	C0.5
Limnodrilus hoffmeisteri	500	C	C0.5

3.2.9.3 Water Contaminants

If a sample of water is taken by a Bucket or a Niskin, each bucket or Niskin is a sample and should be labelled A, B, C, D, E. Any samples taken from a bucket (e.g. for separate analysis of nutrients, chlorophyll, metals etc) are sub-samples and should be labelled 1, 2, 3, 4, etc. In the event that there is not sufficient water within one bucket or Niskin for all analysis that are required then samples from a 2nd bucket should be considered as being a separate sample. On a visit to one station, each sample should have a different start time or depth.

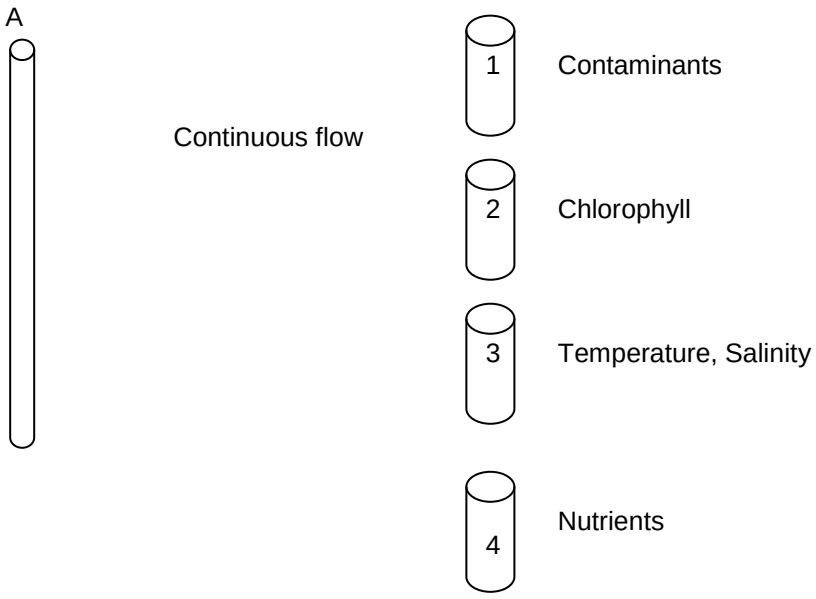
Please see note 1.2 on page 18 on the submission of data at stations that have been visited more than once in a monitoring year.



Water sampler (bucket, Niskin)

Determinand	Sample	Sub-sample
CD	A	1
HG	A	1
ZN	A	1
CU	A	1
FE	A	1
PSAL	A	2
TEMP	A	2
CPHL	A	3
NTRA	A	4
NTRI	A	4

If water is taken by continuous flow then a sample is considered to be taken from a single location depth and within a time required to fill all bottles for analysis. Bottles filled for different analysis are sub-samples and should be labelled 1, 2, 3, 4 etc



Determinand	Sample	Sub-sample
CD	A	1
HG	A	1
ZN	A	1
CU	A	1
FE	A	1
CPHL	A	2
TEMP	A	3
PSAL	A	3
NTRA	A	4
NTRI	A	4

3.2.9.4. Contaminants in Biota and Fish Disease

With biota data **each species** collected at a station is considered a separate sample and should be labelled A, B, C etc. If fish of the **same** species are aggregated from several trawls this is still all **one** sample. Each individual fish or 'batch' of fish (i.e. aggregation of 5 fish for use in the same analysis) subsequently analysed (e.g. for fish disease, biological effects or contaminants) is considered a separate sub-sample and should be numbered 1, 2, 3, 4, 5 etc.

The start time for all samples should reflect the time of the trawl, and not the time that the species were batched off. If more than one trawl was required to get enough fish for samples, one start time should still be used.

At each station on a particular visit, **within a sample** there will always be a consistent species, start date/time and cruise code. **Within a sub-sample** there will always be a consistent number of individuals and sex code, if being used. A new sub-sample does not require a new sample time as this is the time of the trawl. The matrix code can obviously vary within a sub-sample as different parts of the fish/batch of fish are used for various analyses.

For example:

Sample	Sub-sample	Matrix	Species	Determinand	No. Individuals	Sex Code
A	1	LI	Limanda limanda	HCHA	5	M
A	1	LI	Limanda limanda	CB101	5	M
A	1	LI	Limanda limanda	HCB	5	M
A	1	LI	Limanda limanda	LIPIDWT	5	M
A	1	MU	Limanda limanda	CD	5	M
A	1	MU	Limanda limanda	PB	5	M
A	1	WO	Limanda limanda	MOCON	5	M
A	1	WO	Limanda limanda	LNMEA	5	M
A	1	WO	Limanda limanda	WTMEA	5	M
A	2	LI	Limanda limanda	HCHA	10	
A	2	LI	Limanda limanda	CB101	10	
A	2	LI	Limanda limanda	HCB	10	
A	2	LI	Limanda limanda	LIPIDWT	10	
A	2	MU	Limanda limanda	CD	10	
A	2	MU	Limanda limanda	PB	10	
A	2	WO	Limanda limanda	MOCON	10	
A	2	WO	Limanda limanda	LNMEA	10	
A	2	WO	Limanda limanda	WTMEA	10	
B	1	LI	Pleuronectes platessa	HCHA	10	X
B	1	LI	Pleuronectes platessa	CB101	10	X
B	1	LI	Pleuronectes platessa	HCB	10	X
B	1	LI	Pleuronectes platessa	LIPIDWT	10	X

B	1	LI	Pleuronectes platessa	CD	10	X
B	1	LI	Pleuronectes platessa	PB	10	X
B	1	LI	Pleuronectes platessa	MOCON	10	X
B	1	WO	Pleuronectes platessa	LNMEA	10	X
B	1	WO	Pleuronectes platessa	WTMEA	10	X

Shellfish taken within one area should also be considered as one sample if it is all of the same species. If the shellfish have been taken at a number of sites at one CSEMP station then each collection should be considered as sub samples.

Please see **Note 1.2** on page 18 on the submission of data at stations that have been visited more than once in a monitoring year.

3.3 Saving Submission File

When the submission file is complete it must be saved in the comma delimited format (.csv) to be accepted into MERMAN.

- In Excel Select File -> Save As
- Select Save as type: CSV (comma delimited)

  File name: Name your file using the following standard format:

  CMA_ SubmissionType_Monitoring Year.csv (with subsequent versions of the file appended alphabetically i.e. a, b, c, d, etc) e.g. CMA_ SubmissionType_Monitoring Yeara.csv
- For Biology AQC sheets, the datatype (i.e. biology) should come before the 'AQC'*:*

  CMA_Biology_AQC_2005

Examples:

CEFAS_sediment_2006a.csv

FRS_biota_2006c.csv

SEPA_water_2006b.csv

AFBI_biology_2006d.csv

EHS_aqc_2006b.csv

EANLS_biology_aqc_2006d.csv

FRS_beaqc_2009a.csv

- The naming of files which are used to 'unhold' data should follow that of the submission type files but include 'unhold' between the submission type and the year. For example:

SEPA_water_unhold_2006b.csv

EANLS_biology_aqc_unhold_2006d.csv

This will make it easy for submitters, reviewers and the Data Manager to identify which files have been submitted and what changes have been made to the data through the course of the submission process, with any corrections made being easily tracked.

Please see a full list of competent monitoring authorities in appendix 2.

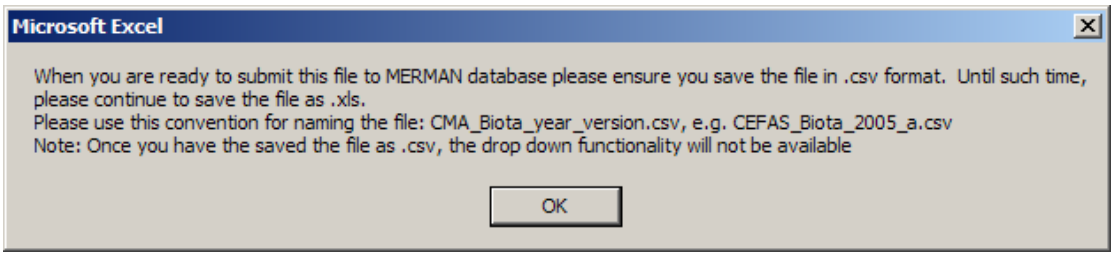

Microsoft Excel
When you are ready to submit this file to MERMAN database please ensure you save the file in .csv format. Until such time, please continue to save the file as .xls.
Please use this convention for naming the file: CMA_Biota_year_version.csv, e.g. CEFAS_Biota_2005_a.csv
Note: Once you have the saved the file as .csv, the drop down functionality will not be available
OK

Figure 11 – Prompt for Saving the Submission File

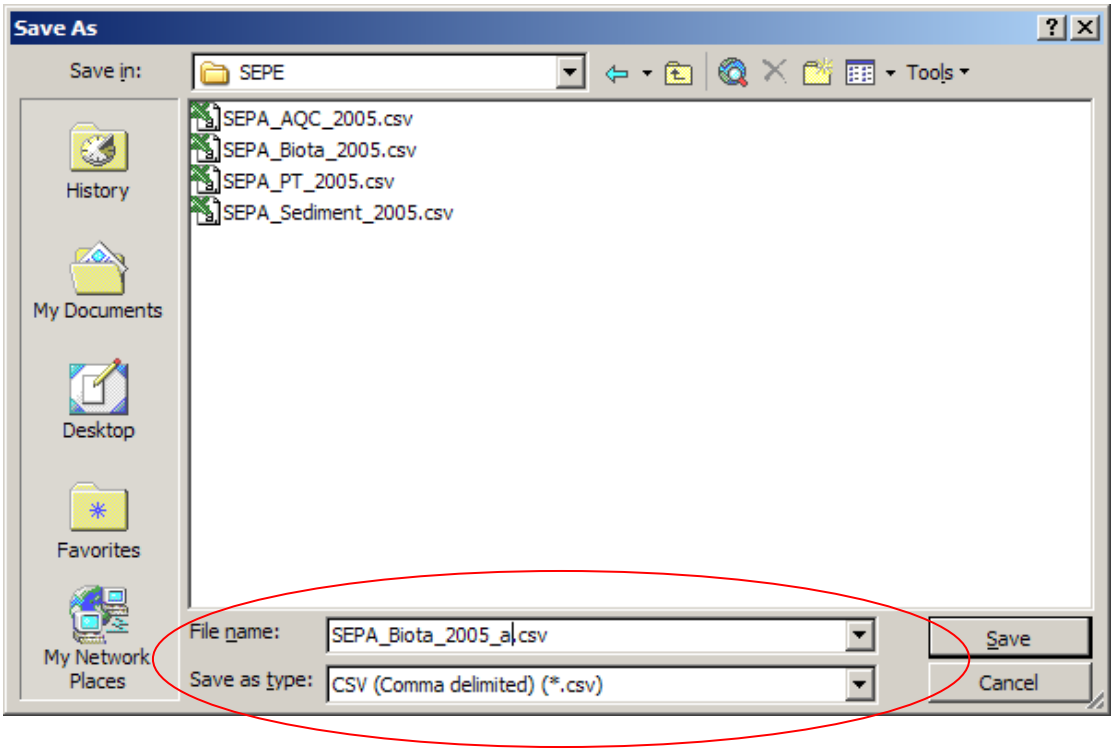


Figure 12 – Save File As CSV

3.4 Uploading Data

Logon to the Defra Portal using your User ID and password given to you previously on enrolling.

Select ‘File Upload’ from the toolbar.

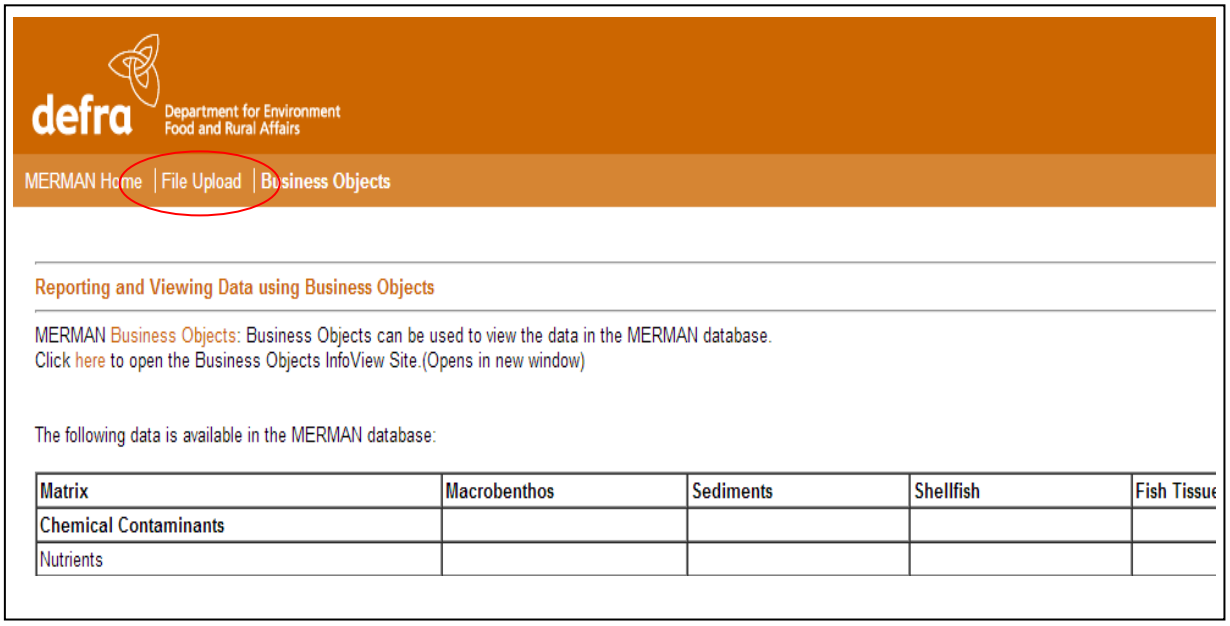

defra
Department for Environment
Food and Rural Affairs
MERMAN Home | File Upload | Business Objects
Reporting and Viewing Data using Business Objects
MERMAN Business Objects: Business Objects can be used to view the data in the MERMAN database.
Click here to open the Business Objects InfoView Site.(Opens in new window)
The following data is available in the MERMAN database:
Matrix
Macrobenthos
Sediments
Shellfish
Fish Tissue
Chemical Contaminants
Nutrients

Figure 13 – Defra Portal

Click the Choose File button to select your submission file.

Click OK.

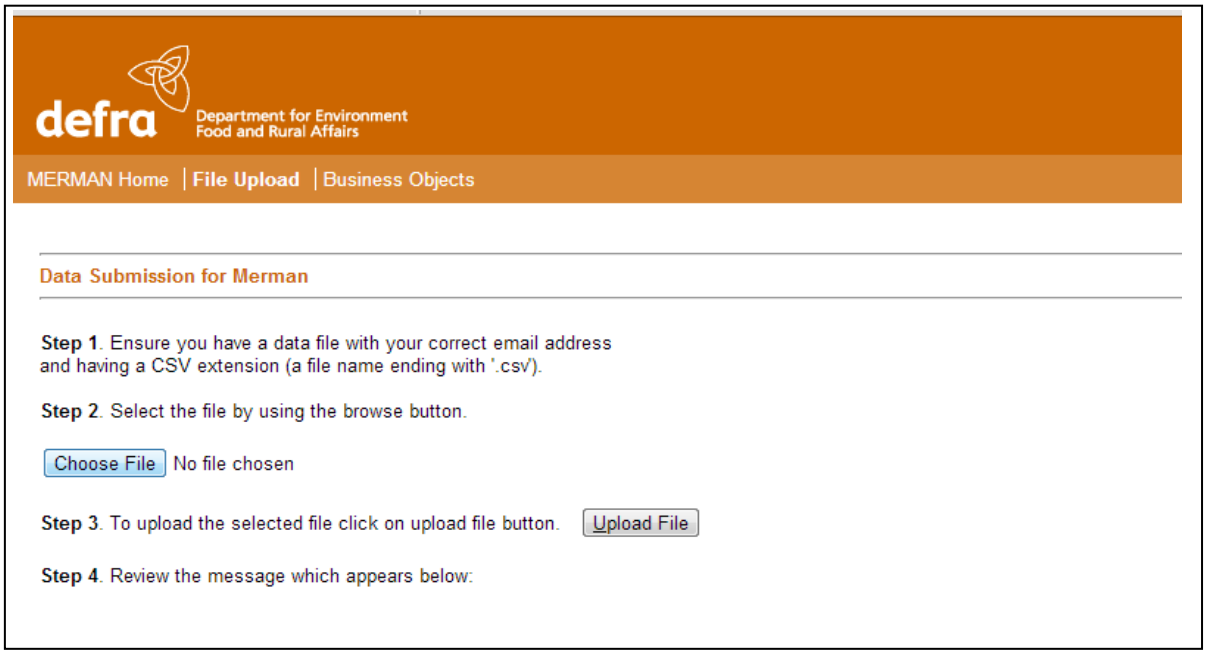
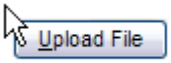

defra
Department for Environment
Food and Rural Affairs
MERMAN Home | File Upload | Business Objects
Data Submission for Merman
Step 1. Ensure you have a data file with your correct email address
and having a CSV extension (a file name ending with '.csv').
Step 2. Select the file by using the browse button.
Choose File
No file chosen
Step 3. To upload the selected file click on upload file button.
Upload File
Step 4. Review the message which appears below:

Figure 14 – File Upload Page

Once you have selected the input file, click on Upload File button. 

You will receive a confirmation message on the screen that the file has been submitted, and within an hour of the submission you will receive a confirmation email informing the submitter if the file has been accepted and loaded to MERMAN.

If you do not receive a confirmation e-mail from MERMAN you should assume that your file has **NOT** been successfully loaded and you should contact the MERMAN mangers on merman@bodc.ac.uk immediately.

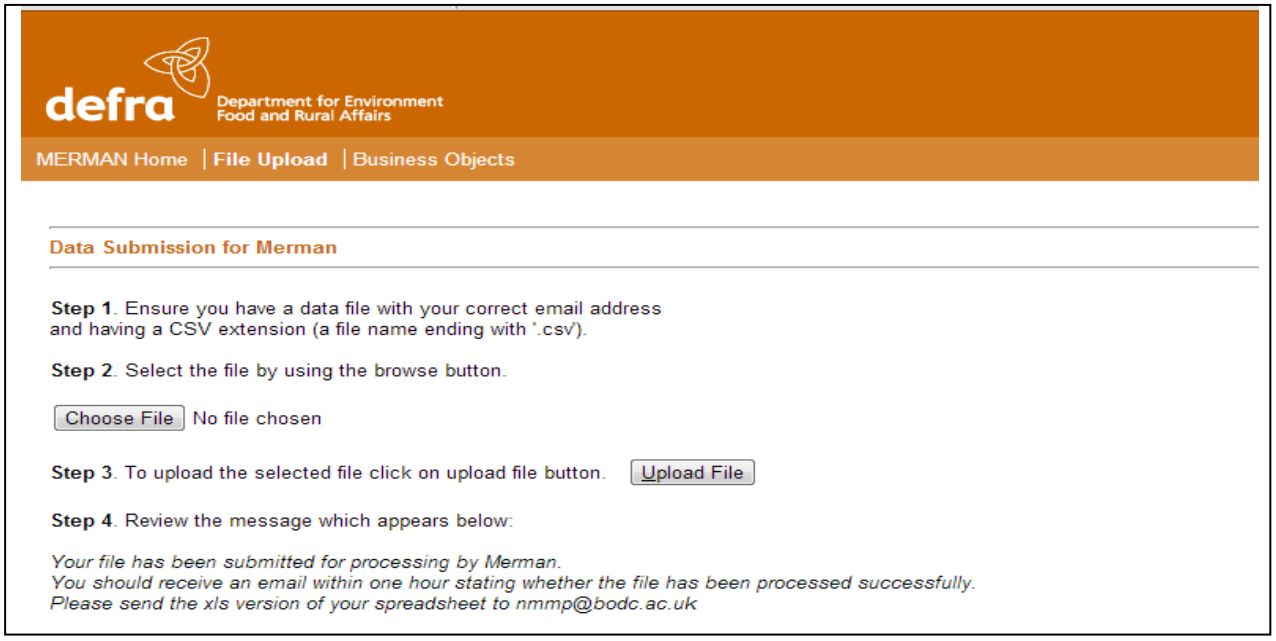

defra
Department for Environment
Food and Rural Affairs
MERMAN Home | File Upload | Business Objects
Data Submission for Merman
Step 1. Ensure you have a data file with your correct email address
and having a CSV extension (a file name ending with '.csv').
Step 2. Select the file by using the browse button.
Choose File No file chosen
Step 3. To upload the selected file click on upload file button. Upload File
Step 4. Review the message which appears below:
Your file has been submitted for processing by Merman.
You should receive an email within one hour stating whether the file has been processed successfully.
Please send the xls version of your spreadsheet to nmmp@bodc.ac.uk

Figure 15 – Submission Confirmation Message on the Screen

Once the file has been submitted to MERMAN the submitter must also send a copy of this file (and any subsequent versions) to the Data Manager. The file should be attached to the e-mail message received from MERMAN.

These files and their updated versions will be stored at BODC in an archive which will allow the user to trace any changes made to the data file if need be. Having a copy of the data file will also help the Data Manager to identify problems which may be hindering its submission into MERMAN.

It is important to note that the database is setup to accept one data file per data type per CMA per year. Any further submissions of the same data file made will overwrite what has been submitted previously for that data type for that year. Therefore when submitting an updated version, it is important to make sure that the whole file is resubmitted rather than a partial submission comprising the corrected data only. This further substantiates the need to send a copy of the file to BODC as in the event that a submitted data set is lost due to being overwritten by an incomplete data submission, BODC will be able to supply the original version.

3.4.1 Confirmation of Submission

The user will receive a confirmation email within an hour of the submission. The email will state whether the submission has been successful or not.

If you do receive a confirmation e-mail from MERMAN you should assume that your file has **NOT** been successfully loaded and you should contact the MERMAN mangers on merman@bodc.ac.uk immediately.

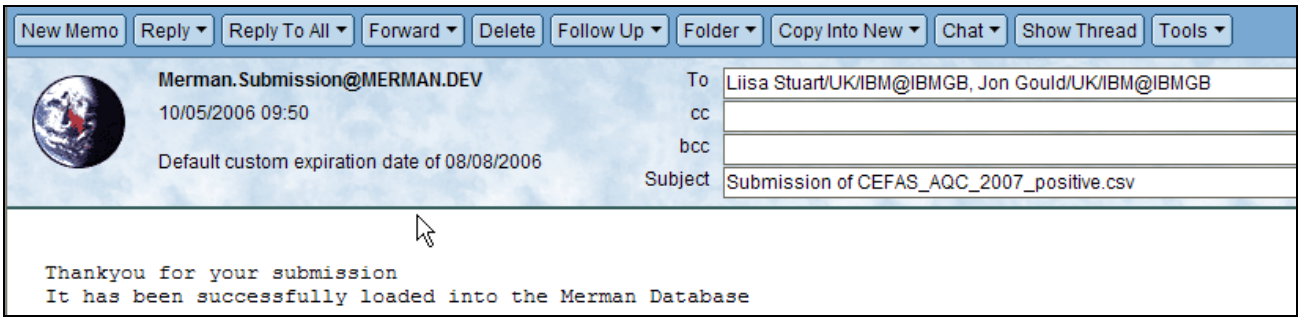


Figure 16 – Submission Confirmation Email

If the submission file has an invalid email address or the submission file has an invalid file name, the system will send an email to the data manager to inform of the failed submission.

3.5 Handling Errors

In the case of an erroneous submission the email will contain an attached error report.

Thankyou for your submission
Unfortunately it failed to load into the database.
Please find attached the error report
The original of this email was scanned for viruses by Government Secure Intranet (GSi) virus s
supplied exclusively by Cable & Wireless in partnership with MessageLabs.
On leaving the GSI this email was certified virus free.
The MessageLabs Anti Virus Service is the first managed service to achieve the CSIA Claims Test
Certificate Number 2006/04/0007), the UK Government quality mark initiative for information sec
services. For more information about this please visit www.cctmark.gov.uk
ea_water_2004.err

Figure 17 – Error Report Email

Select -> Open with **Word Pad** program
The report details the row number from your submission spreadsheet where the error occurred and the type of error in question.

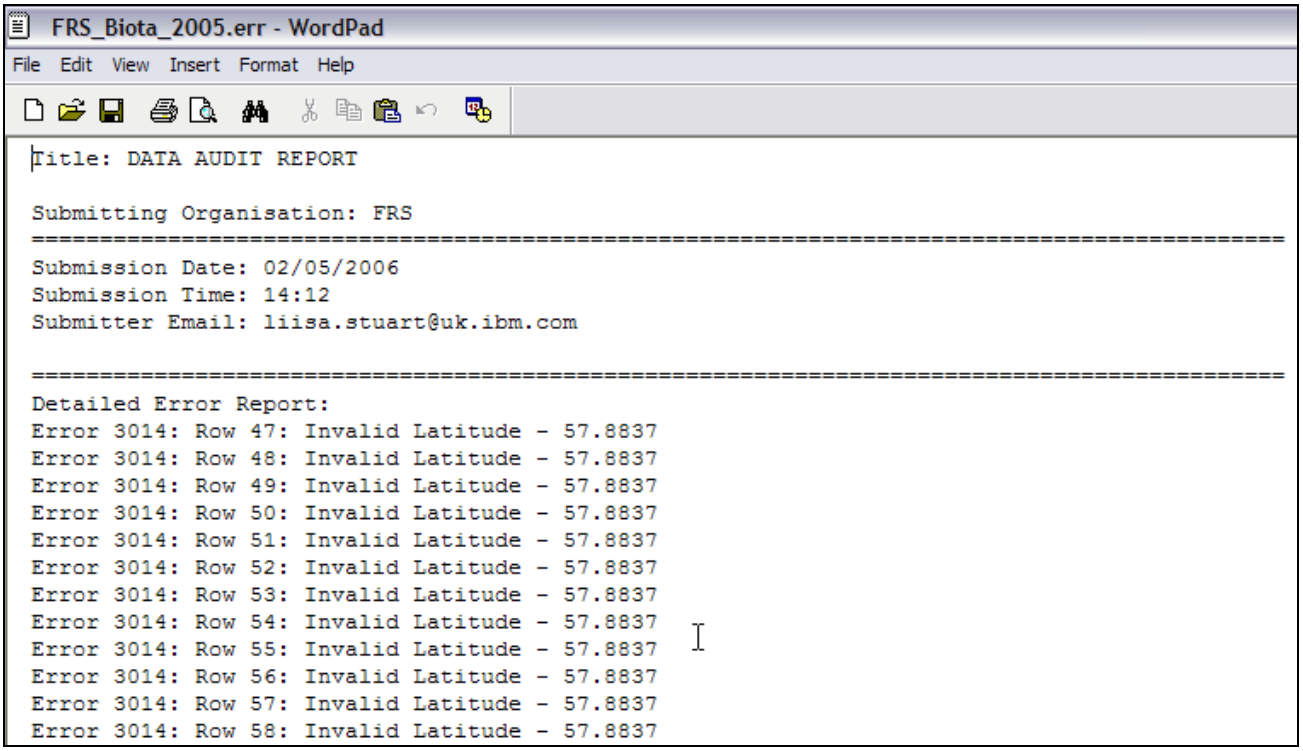

FRS_Biota_2005.err - WordPad
File Edit View Insert Format Help
Title: DATA AUDIT REPORT
Submitting Organisation: FRS
Submission Date: 02/05/2006
Submission Time: 14:12
Submitter Email: liisa.stuart@uk.ibm.com
Detailed Error Report:
Error 3014: Row 47: Invalid Latitude - 57.8837
Error 3014: Row 48: Invalid Latitude - 57.8837
Error 3014: Row 49: Invalid Latitude - 57.8837
Error 3014: Row 50: Invalid Latitude - 57.8837
Error 3014: Row 51: Invalid Latitude - 57.8837
Error 3014: Row 52: Invalid Latitude - 57.8837
Error 3014: Row 53: Invalid Latitude - 57.8837
Error 3014: Row 54: Invalid Latitude - 57.8837
Error 3014: Row 55: Invalid Latitude - 57.8837
Error 3014: Row 56: Invalid Latitude - 57.8837
Error 3014: Row 57: Invalid Latitude - 57.8837
Error 3014: Row 58: Invalid Latitude - 57.8837

Figure 18 – Error Report

The error report will help you to locate the error in the submission file and gives you the field where the error is; in this example the Latitude is not correct.

At first the error list can be daunting but the situation is usually better than it looks. You will find that once the common errors have been corrected (e.g. units of measurement, station numbers etc.) the volume of errors decreases substantially.

When the errors have been corrected in the input sheet you can re-submit the data using the same procedure as before, saving the data file as an updated version by appending the original filename. As well as this resend the file to the Data Manager: merman@bodc.ac.uk .

3.6 Releasing Data

When sample data are first submitted into the database each record is defaulted to 'Accepted' status and will not be available to users outside your own organisation to view. Once the data for a CMA have been loaded it must be reviewed in the MERMAN database by the responsible officer. The responsible officer must then release the data by submitting an 'Unhold' spreadsheet.

The unhold spreadsheet must be submitted for each data type (sediment, water, biota, biology, AQC, PT, Biology AQC) for each CMA and monitoring year. Any subsequent data submissions will automatically set the data for the same year and CMA to be 'Accepted' again.

All data must be unheld for the ICES report to be created. Data should not be re-held once the ICES report has been created as agreed at CSSEG.

Submission Held Spreadsheet

Column Name	Instructions
Submitter_email_address	
Monitoring_year	Enter monitoring year
CMA	
Submission_type	Enter a submission type for that CMA.
Submission Held Flag	**N** (No)

3.7 Submission Checks by Responsible Officers

Once all submissions have been made for a monitoring year, Responsible Officers (or persons appointed by them) should complete the following checks. These checks should be completed by the deadline as specified in section 1.4. If any of these checks highlight any inaccuracies then resubmissions should be made. Once the checks have been completed then the submissions should be unheld.

1. Ensure that all CRMCOs are registered with ICES well in advance (4 weeks) of submission deadlines. Registrations should be completed through BODC for CRMCOs used within the CSEMP. Check that all new station codes to be used are sent to BODC using the format in section 3.8, at least 4 weeks prior to any submission round.
2. Ensure that the Sample Reason Fields are correctly completed for each data type– see note 2.1 of section 3.2.1 for details.
3. Carry out the Data Screening Report for each parameter for each data type using the Business Objects report under ‘Public Folders. Carry out any remedial action.
4. Check that all **sample results are greater than the detection limit** as specified in the AQC input spreadsheet.
5. Check that all mandatory fields are submitted.
6. Check that any parameters that do not have associated AQC information (e.g. TEMP, PSAL, MOCON, LNMIN, LNMAX, LNMEA, WTMIN, WTMAX, WTMEA, Grain Size parameters) but should still be transferred to ICES are added to the Biology AQC template. Other parameters such as LIPIDWT%, FATWT%, CORG may be passed in the Biology AQC template once agreed with the appropriate AQC chair.
7. Review the final AQC score for each parameter for each data type. Any parameters not passing the data filter will not be transferred to ICES. Use the BO report ‘Final AQC Scores’ in ‘Public Folders’ for this check. This report details the AQC scores for each parameter for each data type for a specified year.
8. Also check the AQC_data_cross-check report. This enables ROs to easily see which determinands have AQC data supplied for them and which do not.
9. Unhold submissions once happy with the data.

3.8 Station naming and new station submissions - The protocol for naming monitoring stations in MERMAN

3.8.1 Introduction

Historically, most data in the CSEMP (or NMMP) have come from a *fixed station* monitoring design, in which several samples are taken from a small fixed area at the same time each year. However, the last NMMP report showed that the power of this programme for detecting temporal trends was often poor. Further, the programme could only support very localised environmental assessments.

The ensuing redesign proposed the monitoring of larger regions. This would lead to greater power, as local spatial variation would be controlled, and would support more meaningful (less localised) environmental assessments. Larger regions would be monitored by stratified sampling, either random sampling within strata (sub-regions), or sampling a network of fixed stations representative of the strata within a region.

The change in approach required a change in the protocol for naming monitoring stations, in particular to link stations more closely to the regions they represent.

This document details an agreed protocol for naming monitoring stations in MERMAN. Ideally, the protocol should have a clear connection between sampling design, data storage, and data analysis. However, the protocol also needs to cope with drivers such as the Water Framework Directive (WFD) and Charting Progress, and is thus something of a compromise. It will be suitable for assessing our monitoring data, but will require some post-processing of data.

There are three main elements to the protocol:

1. UK territorial waters will be divided into *regions* and *strata*. Regions are aligned with the regional seas used for Charting Progress and strata are aligned with WFD water bodies. Thus, all CSEMP data can be allocated to a region and a stratum.

2. All samples will be allocated to a *sampling strategy* that describes the method of data collection. Four main sampling strategies are recognised in the CSEMP: *fixed station*, *stratified random* and *stratified fixed and opportunistic* monitoring. However, the difference between them is sometimes ambiguous so rules are proposed to clarify things.

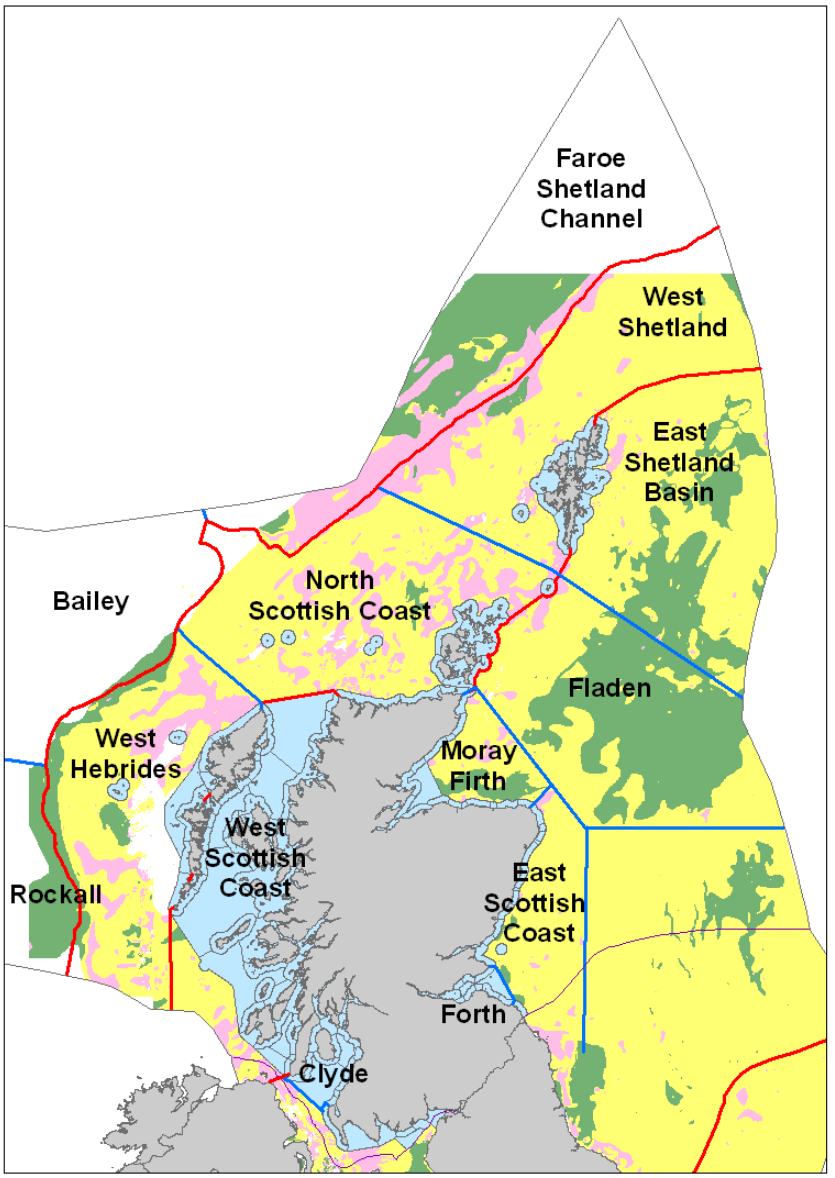
3. Each station name must be unique for ICES reporting purposes (there is no concept of a region of stratum in the ICES database). The station field is a character string with at most 20 characters.

The protocol is developed by way of examples, using Scottish monitoring data.

3.8.2 Regions and strata

The map shows:

- Scottish territorial waters, truncated to the west
- the Scottish border (thin purple line)
- the regional seas' boundaries from Charting Progress, slightly modified to align with WFD water bodies (thick red lines)
- WFD water bodies (light blue areas)
- sediment type in offshore areas (green ~ mud, yellow ~ sand, pink ~ rocky)



The regional seas have been sub-divided into 12 CSEMP regions, based on current monitoring activities, sediment type, hydrography, results from the ICES Regional Assessment of the North Sea, expert judgement, and common sense. The boundaries for the most southerly regions are ambiguous, because they need to be agreed with England, Wales and Northern Ireland. It is arguable that e.g. the Forth region could be amalgamated with the East Scottish Coast region but, given the high profile of major estuaries, it is probably better treated separately.

Each region has many strata, most of which are WFD water bodies. The names of the strata are not shown, but inherit their WFD water body names. Most regions also have an Offshore strata. At present, there is no clear reason for further dividing the Offshore strata, at least in Scottish waters.

3.8.3 Sampling strategies

There are four sampling strategies:

- fixed (FI) — a sample taken at random from a fixed station (a pre-defined, usually small, area within a strata)
- stratified random (SR) — a sample taken at random within a strata
- stratified fixed (SF) — a sample from one of a network of fixed stations that give 'good coverage' and are representative of a strata
- opportunistic (OP) — a catch-all for other sampling strategies

Historically, most CSEMP data would come from fixed stations, based on the same time, same place monitoring mantra.

Stratified random and stratified fixed will be reserved for data that come from core CSEMP monitoring activities and have been designed accordingly. At present, this will be restricted to contaminants, biology, and effects in sediment, and maybe some fish and nutrient monitoring.

Sometimes there are several fixed stations in a stratum that have not explicitly been chosen to give good coverage and be representative of the stratum. Examples include imposex stations around a harbour, or shellfish sites chosen for various EU directives. It is tempting to regard these stations as if they had come from a stratified fixed sampling programme. However, this leads to confusion and ambiguity. The simplest, and correct, approach is to treat the stations as separate fixed stations. It is intended, at the analysis stage, to see if there are common trends at these stations (i.e. combine information across stations within strata and adjacent strata). This would involve the same sort of analysis that is used for a stratified fixed design, but would require more input, at least initially, from data providers about sensible groupings of stations.

Examples of opportunistic sampling might include nutrient measurements taken along a cruise track, or one-off surveys. At the analysis stage, the opportunistic tag provides due warning that the data do not come from a standard design and detailed scrutiny is required to make sense of them!

Although a fixed station is typically thought of as having a small area, some fixed stations could be quite large. An example of a sediment fixed station with a large area is shown later. It is one of the compromises necessary to merge current CSEMP monitoring activities with WFD and Charting Progress.

The list of sampling strategies can be expanded later, if sets of data are identified that are sampled in a standard way.

Typically:

- sediment sites would be fixed, stratified random, or stratified fixed
- imposex sites would be fixed
- shellfish sites would be fixed

- fish sites would be fixed, but they could be stratified fixed (multiple representative sites in a strata), or stratified random (random stations in a strata)
- water sites would either fixed, stratified fixed (e.g. transects down a riverine strata that sample the same points each year), stratified random (e.g. transects down a riverine strata that sample random points each year) or opportunistic (none of the above)

3.8.4 Station names

A meaningful unique station name is constructed by concatenating (and abbreviating) the region and stratum name and appending the matrix and a number. Here are some examples.

1 Fixed station monitoring: three mussel stations, at Lower Largo, Braefoot Bay and Granton, with one pool collected from each.

strategy	region	stratum	name	sample
FI	Forth	Elie to Buckhaven	Forth_Elie_sh01	1
FI	Forth	King Horn to Leith Docks	Forth_KingHorn_sh01	1
FI	Forth	King Horn to Leith Docks	Forth_KingHorn_sh02	1

2 Fixed station monitoring: three imposex sites in the same water body, one pool from each

strategy	region	stratum	name	sample
FI	Forth	Port Seton to Eyebroughty	Forth_PSeton_im01	1
FI	Forth	Port Seton to Eyebroughty	Forth_PSeton_im02	1
FI	Forth	Port Seton to Eyebroughty	Forth_PSeton_im03	1

3 Stratified fixed monitoring: four sediment samples taken along a transect down the Forth Estuary – same sites each year. It is important that the data from each station are matched to the correct station name, since this is required in the subsequent statistical analysis. For example, if the third station along the transect is not sampled one year, the data are still be submitted to stations 1, 2 and 4.

strategy	region	stratum	name	sample
SF	Forth	Middle Forth Estuary	Forth_MiddleEst_se01	1
SF	Forth	Middle Forth Estuary	Forth_MiddleEst_se02	1
SF	Forth	Middle Forth Estuary	Forth_MiddleEst_se03	1
SF	Forth	Middle Forth Estuary	Forth_MiddleEst_se04	1

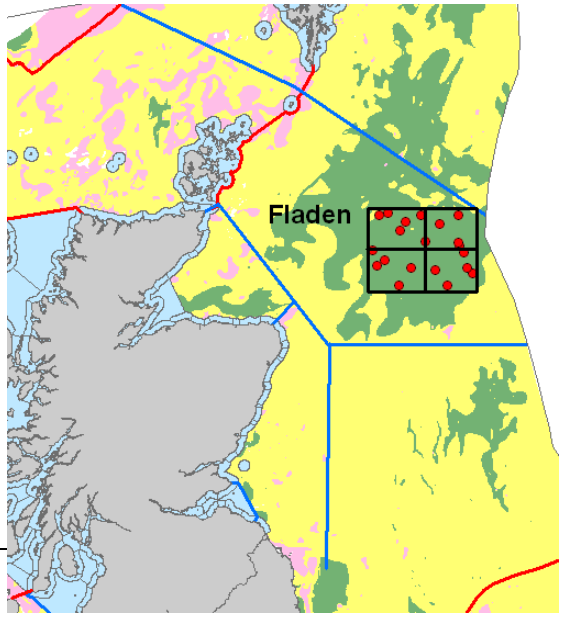
4 Stratified random monitoring: five sediment samples taken at random from the mud in the Minch North water body – different locations each year. The station and the stratum are effectively the same. Note how all samples come from the same station. In contrast to the previous example, there is no link between sample 2 in one year and sample 2 in the next year (except that they come from the same water body).

strategy	region	stratum	name	sample
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	1
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	2
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	3
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	4
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	5

5 As before, but suppose there is also a fixed station sediment monitoring site in the water body with three samples taken per year.

strategy	region	stratum	name	sample
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	1
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	2
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	3
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	4
SR	West Scottish Coast	The Minch North	WSctCst_MinchN_se01	5
FI	West Scottish Coast	The Minch North	WSctCst_MinchN_se02	1
FI	West Scottish Coast	The Minch North	WSctCst_MinchN_se02	2
FI	West Scottish Coast	The Minch North	WSctCst_MinchN_se02	3

6 Some monitoring designs are not so neatly captured. For example, FRS monitors the sediment in part of the Fladen ground. The sampling strategy is stratified random with five samples taken from each of four strata. But the sampling area and strata are not compatible with the regions and strata proposed for MERMAN. It is arguable that FRS should think again, and monitor over the whole (muddy part) of the Fladen region. However, the current monitoring programme can be submitted to MERMAN by regarding each stratum as a fixed station, with a larger area definition than is usually associated



with a fixed station. Thus, the samples from the top two strata might be submitted as follows. The four fixed stations can still be analysed together, but this will require more intervention at the analysis stage.

strategy	region	stratum	name	sample
FI	Fladen	Offshore	Fladen_Offshore_se01	1
FI	Fladen	Offshore	Fladen_Offshore_se01	2
FI	Fladen	Offshore	Fladen_Offshore_se01	3
FI	Fladen	Offshore	Fladen_Offshore_se01	4
FI	Fladen	Offshore	Fladen_Offshore_se01	5
FI	Fladen	Offshore	Fladen_Offshore_se02	1
FI	Fladen	Offshore	Fladen_Offshore_se02	2
FI	Fladen	Offshore	Fladen_Offshore_se02	3
FI	Fladen	Offshore	Fladen_Offshore_se02	4
FI	Fladen	Offshore	Fladen_Offshore_se02	5

7 Four nutrient samples taken whilst steaming up the East Scottish Coast. These are taken opportunistically, so the station and the stratum are effectively the same, as with stratified random sampling. However, the number has been removed to distinguish this catch-all station from the other monitoring stations. Care will be needed to ensure that the sample numbers are unique if many samples are collected opportunistically from the same water body, maybe by different CMAs.

strategy	region	stratum	name	sample
OP	East Scottish Coast	Scurdie ness to Deil's Head	ESctCst_Scurdie_wa	1
OP	East Scottish Coast	Scurdie ness to Deil's Head	ESctCst_Scurdie_wa	2
OP	East Scottish Coast	Scurdie ness to Deil's Head	ESctCst_Scurdie_wa	3
OP	East Scottish Coast	Scurdie ness to Deil's Head	ESctCst_Scurdie_wa	4

3.8.5 Opportunistic Stations

Opportunistic stations are suitable for both spatial purposes and biological effects purposes and all water opportunistic stations also suitable for eutrophication purposes. Thus, the only difference will be that the opportunistic stations are 'spatial', whereas the original stations are 'temporal'. Submitter should reflect these facts in their submissions to MERMAN in the Sample Purpose field.

A meaningful unique station code is constructed by concatenating (and abbreviating) the region and stratum name and appending the matrix and a number.

3.8.6 Adding new fixed stations to the MERMAN station Dictionary.

Only new fixed stations need to be added to the Station Dictionary. A template for adding new stations is available as the last sheet in the station dictionary, available at http://www.bodc.ac.uk/projects/uk/merman/project_specific/ . This must be completed and sent to merman@bodc.ac.uk who will then generate the station codes for you.

Guidance for completing the new station template

- Fields shaded in grey should be completed by selection from drop-down lists.
- The station code must not exceed 25 characters in length and should encompass a full or an abbreviated version of the stratum and region codes within which the station occurs. The station name should not exceed 100 characters in length. Ensure that there are no spaces after the station code or these will become part of the code.
- It is the responsibility of each CMA to ensure that proposed new station codes are unique. Check the current station dictionary (available from SEPA website or contact BODC) and coordinate with other CMAs as appropriate.
- Bounding coordinates should be defined to alert the user if incorrect coordinates have been submitted or the vessel was significantly out of position. It is therefore site specific and should be set with some field knowledge.
- Station bounding box limits should be defined by the CMA. An acceptable range of coordinates appropriate for each particular station should be identified and chosen to ensure all samples are included, so if in doubt chose a larger range.
- Leave the WLTYPE field blank - this will be completed for you.
- The minimum year is the year when sampling started at that station.
- Leave the maximum year of sampling blank if sampling is ongoing.
- All lat and longs to be in decimal degrees to a maximum of 5 decimal points.
- If the ICES Rectangle is not known then leave blank.
- See MERMAN User Guidance section 3.8 for further details on sampling strategy.

3.8.7 Generating opportunistic station codes

BODC hold the master GIS file for strata and regions from which opportunistic station names can be generated from lat and long pairs. CMAs should send a .xls or csv file to BODC who will complete the analysis and will aim to send it back with the opportunistic station names within a few days.

The station dictionary is available for download from
http://www.bodc.ac.uk/projects/uk/merman/project_specific/

4. Running Reports

4.1 Using Business Objects

Business Objects is a web based reporting package that allows users to run standard reports as well as easily build their own tailored reports which allow them to extract the quality assured data from the database.

This user guide does not give detailed instructions in using the Business Objects reporting package as it is assumed that the users will attend a specific training course where they are provided with Business Objects training material. The MERMAN Data Manager will also be able to assist in using Business Objects.

For further help with starting up and using Business Objects, BODC have written a manual which can be found on the BODC website:

http://www.bodc.ac.uk/projects/uk/merman/project_specific/ - Business Objects User Guide.pdf

4.2 Running Standard Reports

There are an infinite number of ways in which the data held in MERMAN can be extracted. However there will be many users who require the same kind of data report. These 'standard' reports have been created so that users do not need a detailed knowledge of Business Objects to extract and use the data.

Once the report is run the data can be downloaded to Excel or other formats of the user's choice.

4.2.1 Downloading Java Runtime - First Time Logon to Business Objects

When you first logon to Business Objects, it is likely that you will be asked to download the Java Runtime Environment. Follow the on-screen instructions to download this software to your machine. Once this software is downloaded, you will be able to access Business Objects.

Instructions:

Log-on to Business Objects:

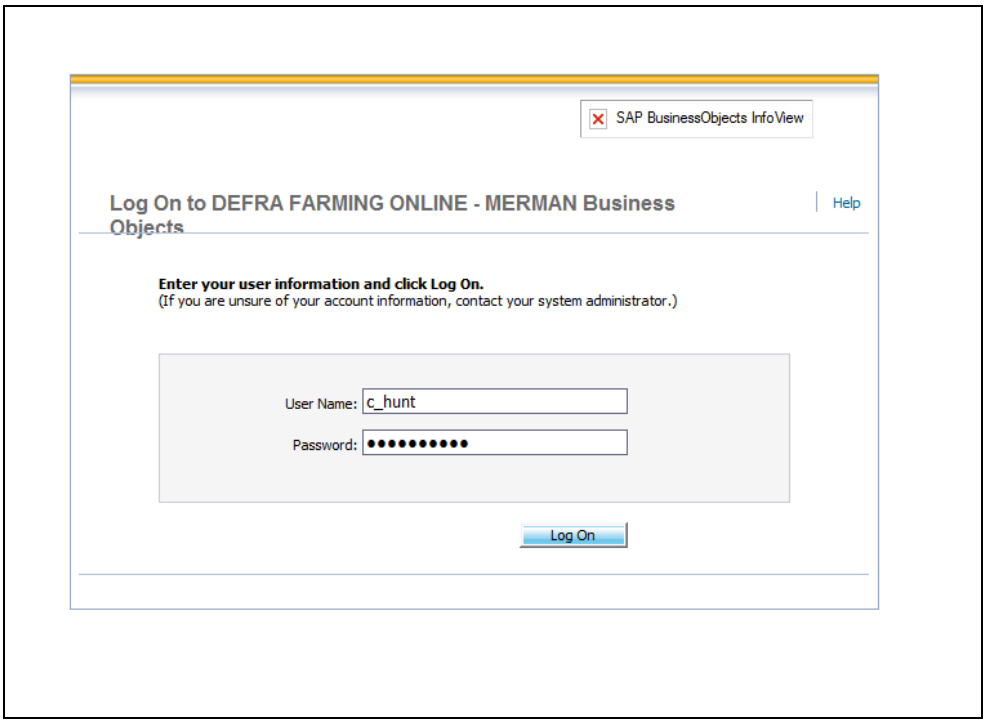

SAP BusinessObjects InfoView
Log On to DEFRA FARMING ONLINE - MERMAN Business Objects
Help
Enter your user information and click Log On.
(If you are unsure of your account information, contact your system administrator.)
User Name: c_hunt
Password: ••••••••••
Log On

Figure 19 – Log-in Page

- Select Document List

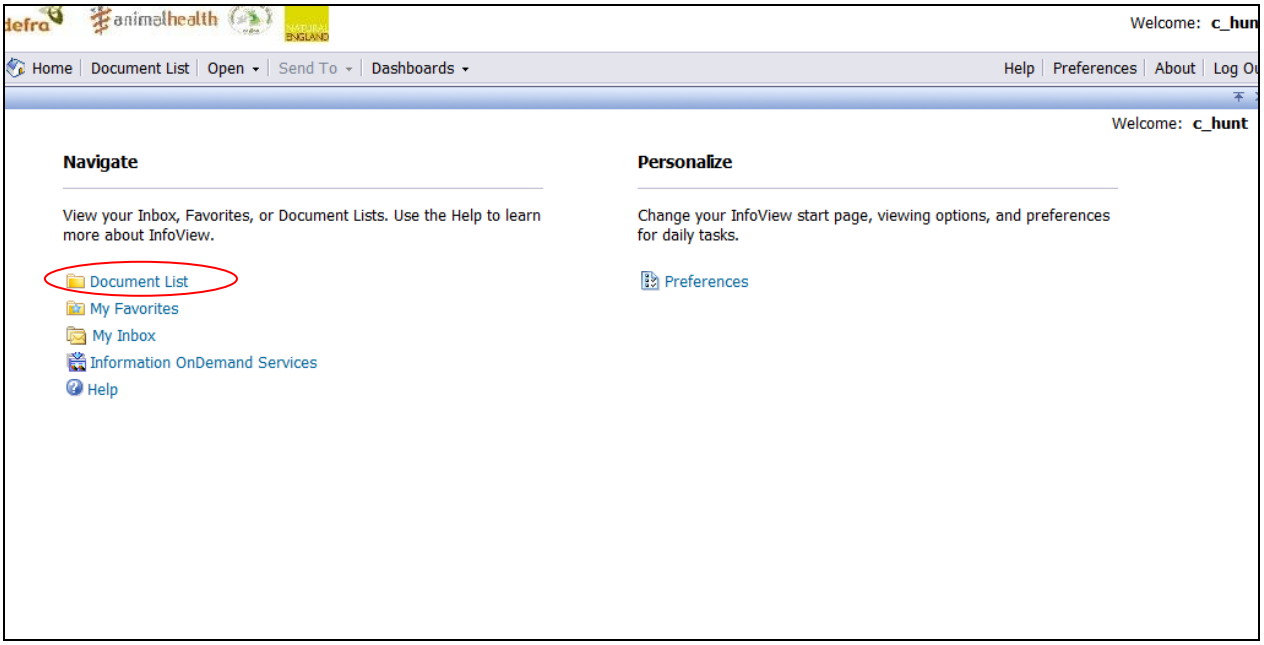

Welcome: c_hun
Home | Document List | Open | Send To | Dashboards | Help | Preferences | About | Log Ou
Welcome: c_hunt
Navigate
View your Inbox, Favorites, or Document Lists. Use the Help to learn more about InfoView.
Document List
My Favorites
My Inbox
Information OnDemand Services
Help
Personalize
Change your InfoView start page, viewing options, and preferences for daily tasks.
Preferences

Figure 20 – Select Document List

- Click on Public Folders > MERMAN; a list of available reports appears.

(Nb. the number of reports available to each user will depend on which category of user they are assigned, see section Security)

- Double-click the desired report.

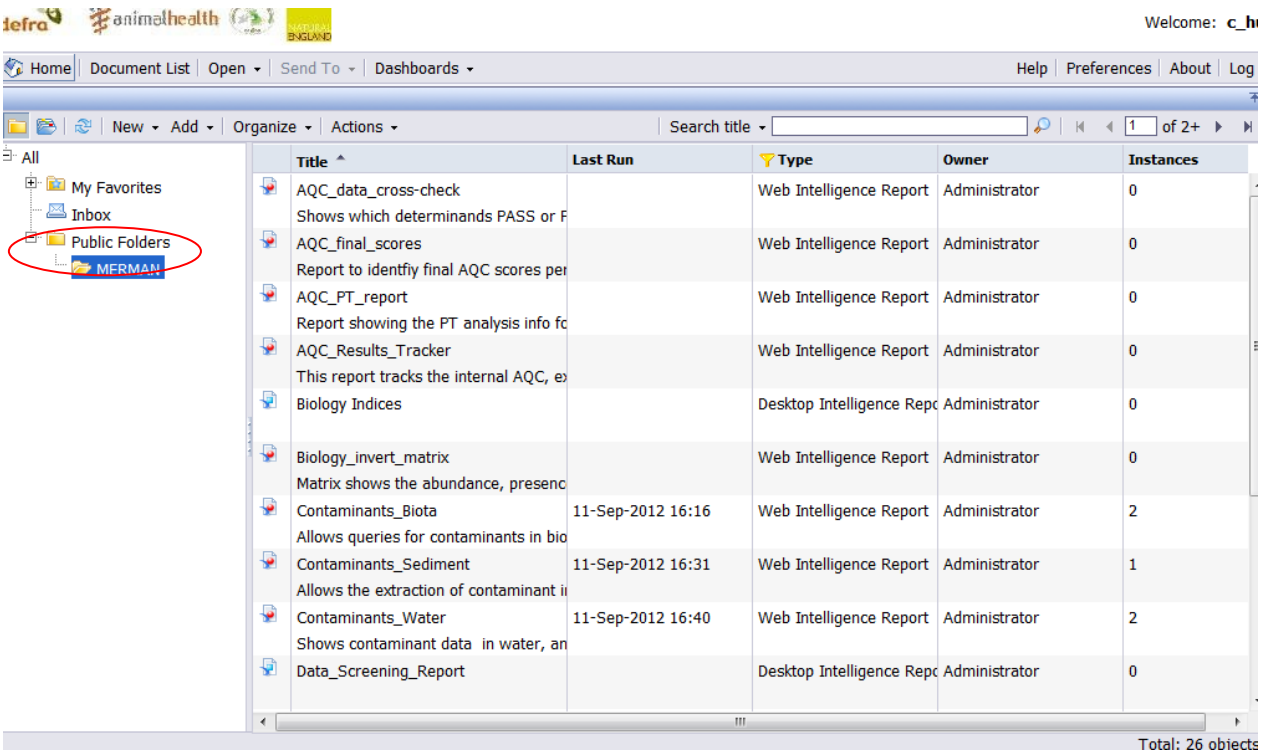


Figure 21 – List of Available Reports for CMAs

- A ‘prompt window’ will generally pop-up asking for further information.
- Enter the required prompts as instructed.
- Press the Run Query button.

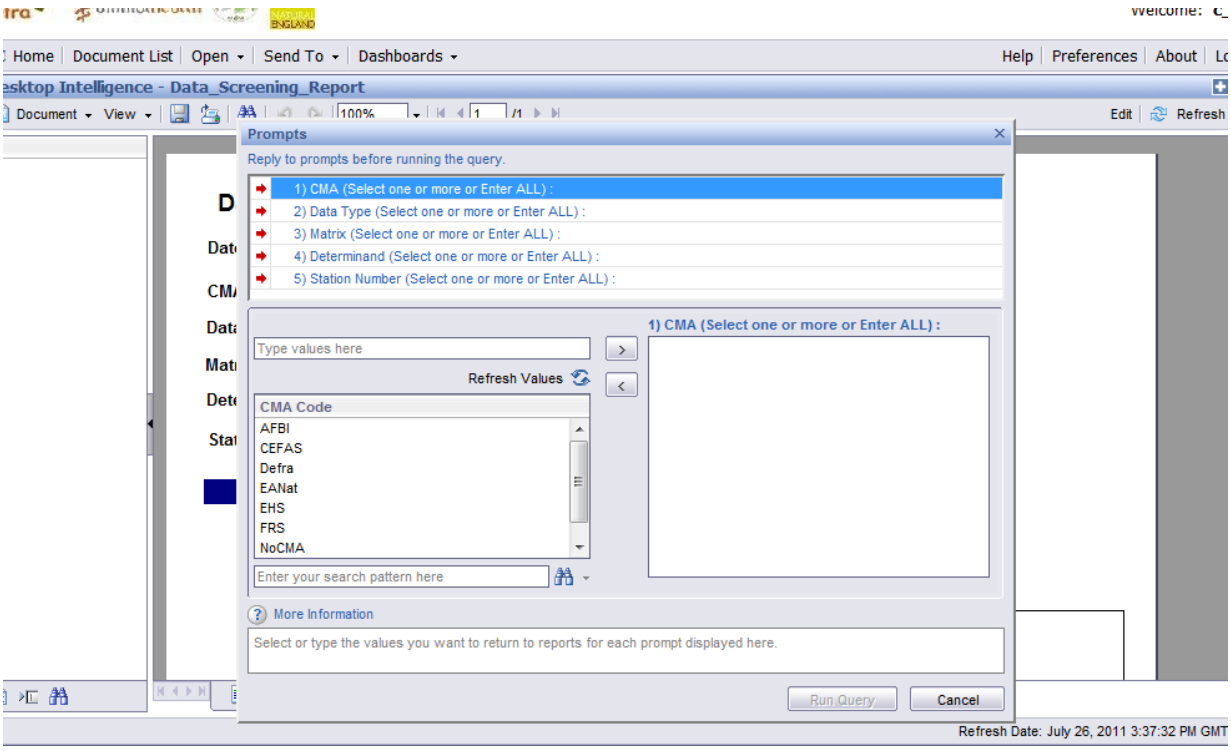


Figure 22 – Report Prompt Window

- The report is generated and the report displayed on the screen:

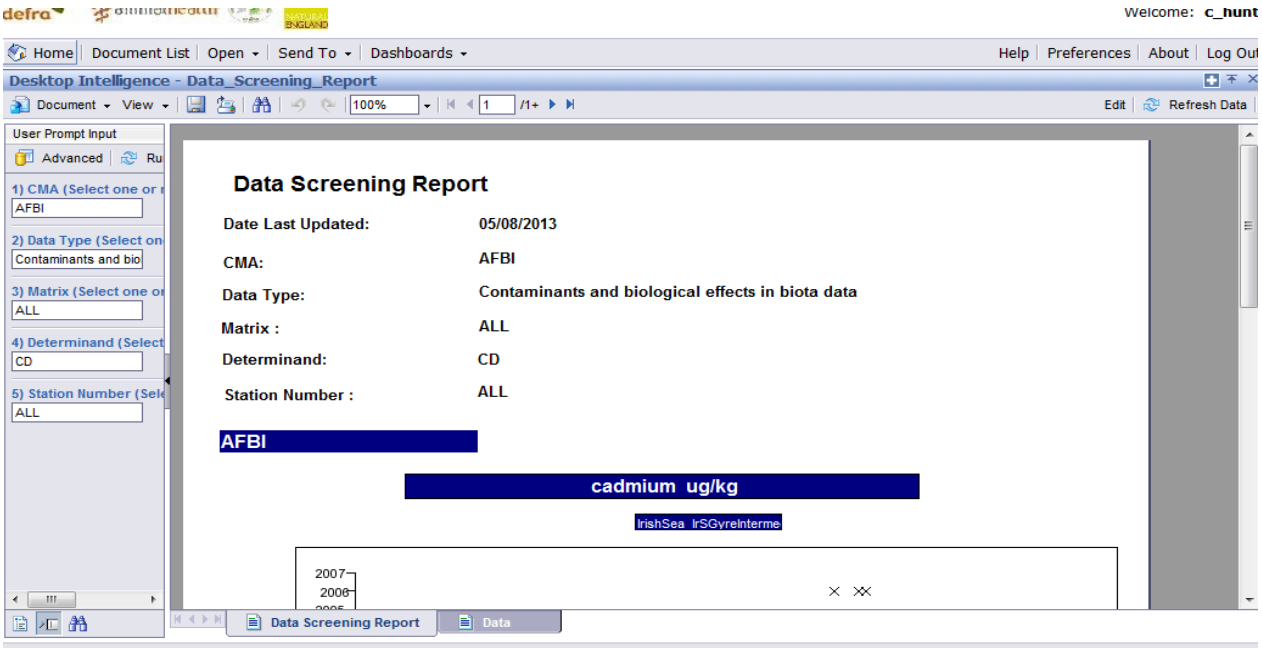


Figure 193 – Report Results Screen

Refresh – this button takes you back to the Prompts window and you can re-run the report.

Close – if you don't want to save the report, simply close the report window.

4.2.2 Saving Reports

When you want to save a report go to the Document menu at the top left corner of the screen:
Document > Save to my computer as > File format

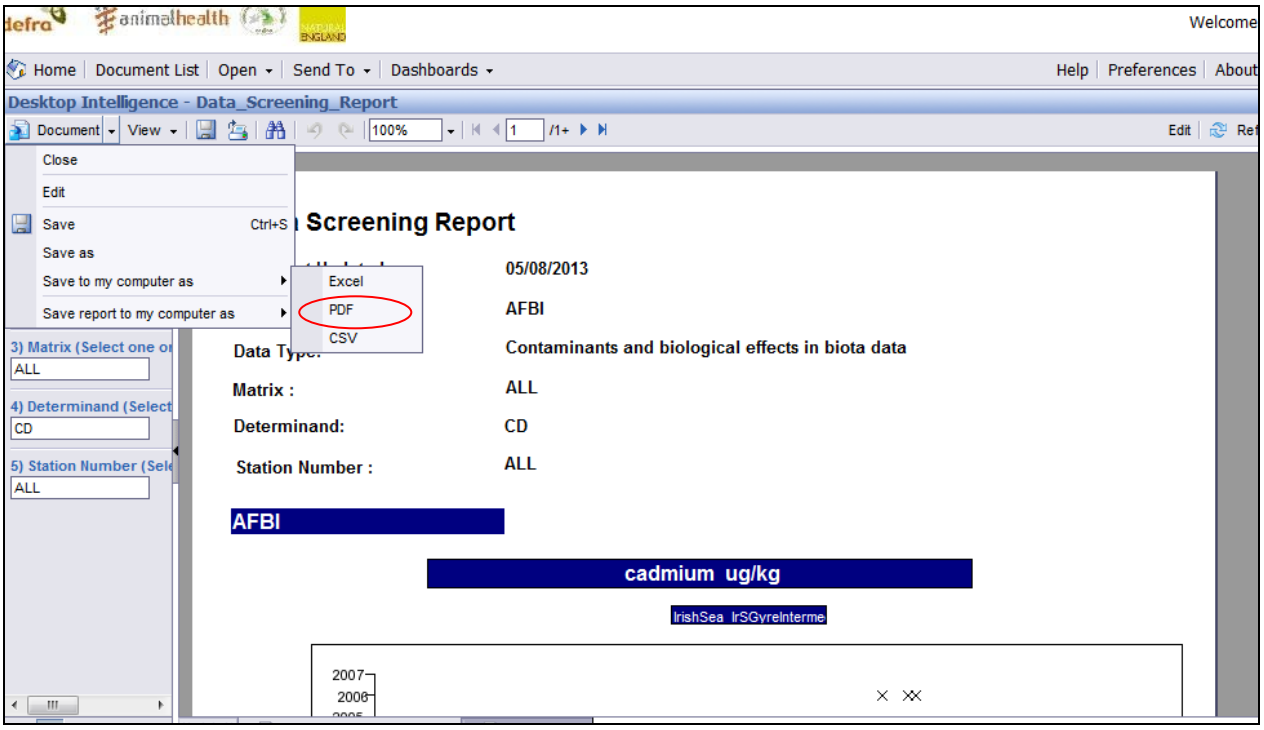


Figure 204 – Save Report

- Save the document to your local computer. Close it by clicking the cross in the top right-hand corner.

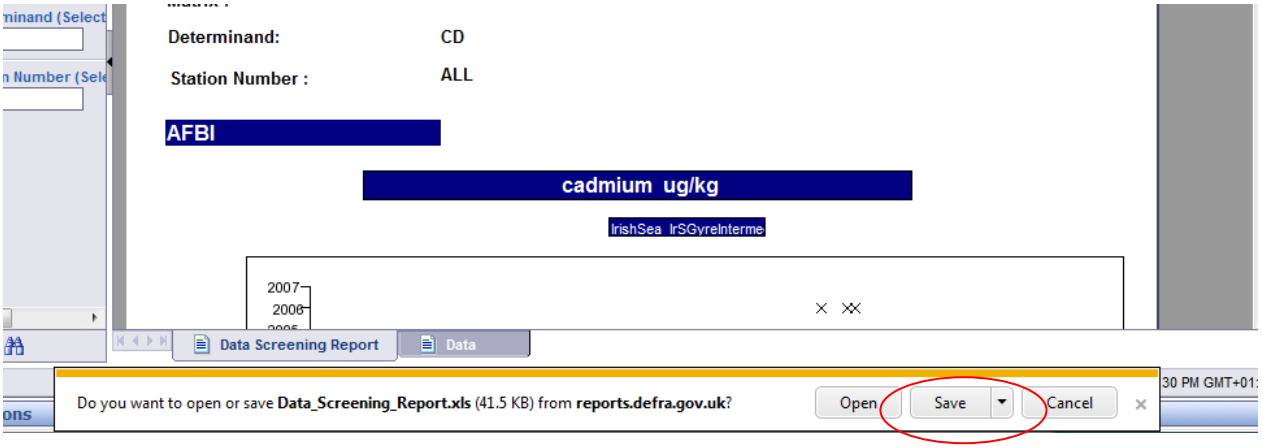


Figure 21 – Save Options Screen

- *There is a bug in Business Objects which occasionally causes the report to close the first time you go to save it to your computer. Click the yellow bar at the top of the page to download the report which will take you back to the documents page. To overcome this, you will have to open the report a second time, select the prompts and run the query again. You won't have any problems saving the report the 2nd time, or any report thereafter within the same log-in session.*

4.3 Overview of the MERMAN Database Structure

The Business Objects database structure, also known as the Universe is a logical grouping of reportable data items. The data items are categorised into Classes (higher level items) and Objects (lower level items). In general Classes can be compared to database tables and Objects to attributes in a table. However the database table structure does not limit the grouping of data items into Classes. There can also be several levels of Classes and Sub-classes.

The proposed MERMAN Business Objects Universe is categorized as follows:

The seven categories are:

- Metadata
  - Information about the data in the database such as, subject, name and address of distributor, geographic coordinates of the data.
- Which location?
  - Examples of fields that can be selected for reporting are: Latitude, longitude, region
- Which measurements?
  - Determinand Code, Species, Results
- What matrix?
  - Matrix, RID Discharge type
- Date/Time of sample

- Additional search criteria
    - All other data elements that aren't stored in the other folders, such as: Submission details, sample reason, sampler type.
- AQC
    - Details of AQC and PT data submissions and results.

The Universe window has three panes:

- All Objects that can be selected for a query
- Result pane that displays results of the query
- Query Filter pane; the query can be filtered

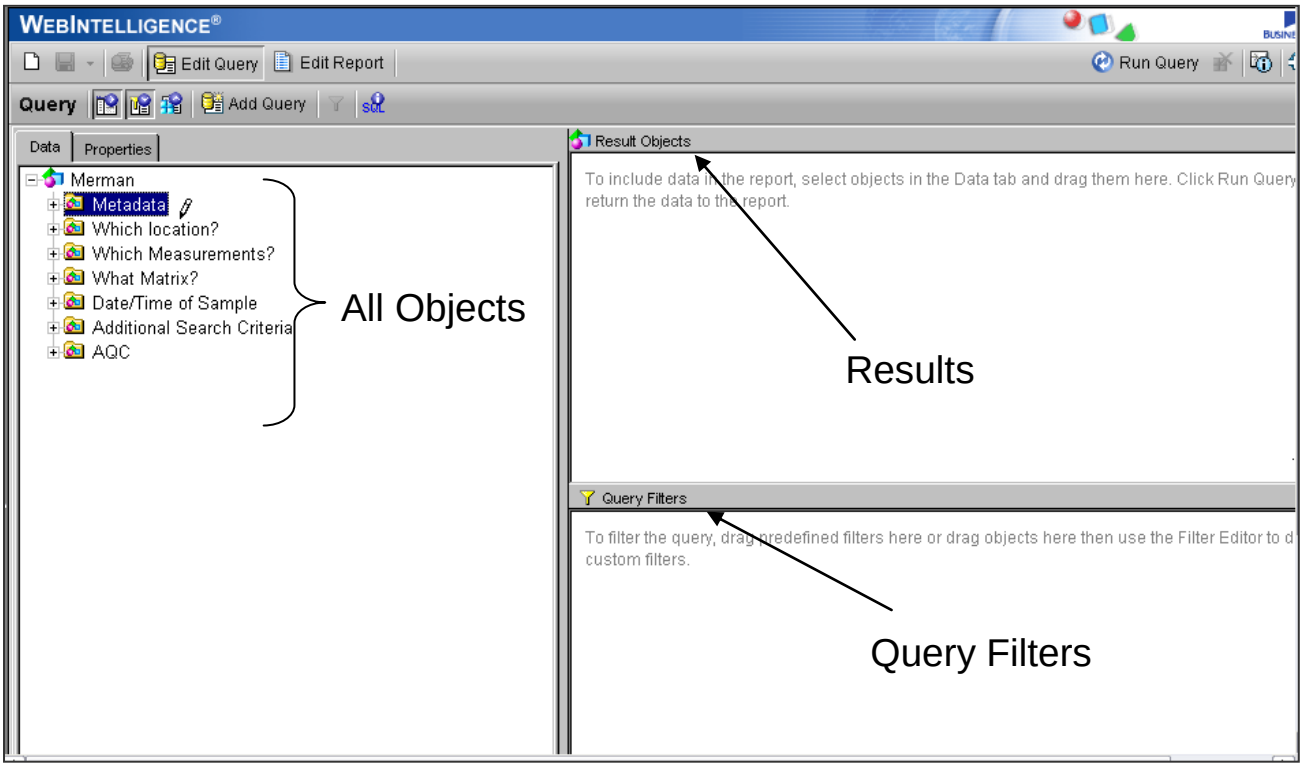


Figure 22 – Business Objects Universe Screen

A typical query will contain elements from Location, Measurements, Matrix and Date/Time folders, all other MERMAN data items are can be found under the Additional Search Criteria folder. To produce a query, select an object and drop in Results Objects pane. Continue to do this until all data items required appear on pane. Move any data items what you wish to filter by into the Query Filter pane and make

Query Filter selection. When ready, click 'Run Query'

5. Security

5.1 Overview

This section explains who can access which parts of the database.

There are two levels of security implemented in MERMAN:

The first layer is governed by the Defra Portal which utilises the Government Gateway and Single Sign On to authenticate users. A users' portal user role allows them to access the data submission or reporting function or both.

The second layer of security is implemented within the Business Objects application and governs what functions and data the user can access within Business Objects.

When applying for a MERMAN logon the user will only need to know whether they need file upload or reporting access or both. Public users will only be given reporting access. The MERMAN Data Manager will decide on the Business Objects permissions given to each user.

5.2 Defra Portal Security

There may be 3 types of user who will have access to the MERMAN database functions as set out below

User Group	Access to Functions
CSEMP Business Object User	Business Objects reporting can view data only
CSEMP Submission User	File upload i.e. can add data only
CSEMP Multiple Support User	Business Objects reporting File upload Can both upload data and view it

5.3 Business Objects Security

The data access – i.e. what can be extracted from the BO reporting tool will be generated according to 4 user types as shown below. The security levels and time frames may change in the future.

User Group	Access to Data
CMA User	Can see all (sample and AQC) data for their own CMA

	Can see sample data (but not AQC) for other CMAs when data are "Unheld"
CSEMP User	Can see all sample data (but not AQC) for their own CMA when data are "Unheld". Can see all sample data (but not AQC) for other CMAs when data are "Unheld".
Database Manager	Can see all data for all CMAs
Public User	Can see Sample data that are **both** "Unheld" and have the AQC Status of "Passed". AQC data not available to the Public

6. How to Get Help

Support for submission and access to MERMAN is provided by the MERMAN Data Manager:

MERMAN Data Manager:

MERMAN Management Team
British Oceanographic Data Centre
Joseph Proudman Building
6 Brownlow Street
Liverpool
L3 5DA
Tel: 01517954861
Fax: 01517954912
e-mail: merman@bodc.ac.uk

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7. Appendices

7.1 List of Abbreviations

Abbreviation	Description
MERMAN	Marine Environment Monitoring and Assessment National Database
RID	Riverine and Indirect Discharges
CSEMP	National Marine Monitoring Programme
ICES	International Council for Exploration of Seas
BODC	British Oceanographic Data Centre
CMA	Competent Monitoring Authority
AQC	Analytical Quality Control
PT	Proficiency Testing
CSV	Comma Separated Value

7.2 List of Competent Monitoring Authorities

CMA	Description
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
FRS	Fisheries Research Services (now known as MSS – Marine Science Scotland, however still known as FRS in the database)
SEPA	Scottish Environment Protection Agency
EHS	Environment Heritage Services (now known as NIEA - however still known as FRS in the database)
AFBI	Agri-Food and Biosciences Institute
EANLS	Environment Agency National Lab Service (EA Llanelli)
EANat	Environment Agency National
Defra	Defra

7.3 Merging Excel spreadsheets

A future requirement of the system is to submit Fish Disease data. At present the system does not support this. In the future, once the system has been upgraded, users will need to create .csv files where the number of records will exceed the Excel limit of 64,000 records. This can be done as follows:

1. If you need to create a submission file with more than that number of records then you can create the data in several spreadsheets and then combine the CSV files that are generated from the spreadsheets.
2. Before you save the spreadsheets as CSV you need to delete the heading rows (rows 1 and 2) from the second and subsequent spreadsheets (but not the first) so that they contain only the data rows. Then save each spreadsheet as a CSV file and combine the files using the copy command.

   Example:

   Suppose you create the spreadsheets as
   CEFAS_Biota_2005_part1.xls, CEFAS_Biota_2005_part2.xls, CEFAS_Biota_2005_part3.xls

   The CSV files will be
   CEFAS_Biota_2005_part1.csv, CEFAS_Biota_2005_part2.csv, CEFAS_Biota_2005_part3.csv

   Open a command prompt window
   Click Start->Run then enter cmd
   Change to the drive and directory where you have saved the CSV files

   C:
   cd \My documents\CSEMP
   copy /B
   CEFAS_Biota_2005_part1.csv+CEFAS_Biota_2005_part2.csv+CEFAS_Biota_2005_part3.csv
   CEFAS_Biota_2005.csv